



5

SEQUENCE LISTING

<110> Gerardo Castillo
Alan Snow

<120> Therapeutic and Diagnostic Applications
of Laminin and Laminin-Derived Protein Fragments

<130> PROTEO.P03

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<141> 2001-08-22

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<309> 1990-11-01

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Gln Glu Gly Arg Leu His Phe Met Phe Asp Leu Gly Lys Gly Arg Thr
35 40 45
Lys Val Ser His Pro Ala Leu Leu Ser Asp Gly Lys Trp His Thr Val
50 55 60
Lys Thr Glu Tyr Ile Lys Arg Lys Ala Phe Met Thr Val Asp Gly Gln
65 70 75 80
Glu Ser Pro Ser Val Thr Val Val Gly Asn Ala Thr Thr Leu Asp Val
85 90 95
Glu Arg Lys Leu Tyr Leu Gly Gly Leu Pro Ser His Tyr Arg Ala Arg
100 105 110
Asn Ile Gly Thr Ile Thr His Ser Ile Pro Ala Cys Ile Gly Glu Ile
115 120 125
Met Val Asn Gly Gln Gln Leu Asp Lys Asp Arg Pro Leu Ser Ala Ser
130 135 140

Ala Val Asp Arg Cys Tyr Val Val Ala Gln Glu Gly Thr Phe Phe Glu
145 150 155 160
Gly Ser Gly Tyr Ala Ala Leu Val Lys Glu Gly Tyr Lys Val Arg Leu
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Asp

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<300>
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<309> 1992-05-01

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Tyr Tyr Met Ala His Gln Asn Gln Ala Asp Tyr Ala Val Leu Gln Leu
20 25 30
His Gly Arg Leu His Phe Met Phe Asp Leu Gly Lys Gly Arg Thr
35 40 45
Lys Val Ser His Pro Ala Leu Leu Ser Asp Gly Lys Trp His Thr Val
50 55 60
Lys Thr Asp Tyr Val Lys Arg Lys Gly Phe Ile Thr Val Asp Gly Arg
65 70 75 80
Glu Ser Pro Met Val Thr Val Val Gly Asp Gly Thr Met Leu Asp Val
85 90 95
Glu Gly Leu Phe Tyr Leu Gly Gly Leu Pro Ser Gln Tyr Gln Ala Arg
100 105 110
Lys Ile Gly Asn Ile Thr His Ser Ile Pro Ala Cys Ile Gly Asp Val
115 120 125
Thr Val Asn Ser Lys Gln Leu Asp Lys Asp Ser Pro Val Ser Ala Phe
130 135 140
Thr Val Asn Arg Cys Tyr Ala Val Ala Gln Glu Gly Thr Tyr Phe Asp
145 150 155 160
Gly Ser Gly Tyr Ala Ala Leu Val Lys Glu Gly Tyr Lys Val Gln Ser
165 170 175
Asp

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<300>
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Ile Leu Asn Leu Ala Thr Asn Ala His Ile Ser Ala Asn Ala Thr Cys
35 40 45
Gly Glu Lys Gly Pro Glu Met Phe Cys Lys Leu Val Glu His Val Pro

50	55	60	
Gly Arg Pro Val Arg His Ala Gln Cys Arg Val Cys Asp Gly Asn Ser			
65	70	75	
Thr Asn Pro Arg Glu Arg His Pro Ile Ser His Ala Ile Asp Gly Thr		80	
85	90	95	
Asn Asn Trp Trp Gln Ser Pro Ser Ile Gln Asn Gly Arg Glu Tyr His			
100	105	110	
Trp Val Thr Val Thr Leu Asp Leu Arg Gln Val Phe Gln Val Ala Tyr			
115	120	125	
Ile Ile Ile Lys Ala Ala Asn Ala Pro Arg Pro Gly Asn Trp Ile Leu			
130	135	140	
Glu Arg Ser Val Asp Gly Val Lys Phe Lys Pro Trp Gln Tyr Tyr Ala			
145	150	155	160
Val Ser Asp Thr Glu Cys Leu Thr Arg Tyr Lys Ile Thr Pro Arg Arg			
165	170	175	
Gly Pro Pro Thr Tyr Arg Ala Asp Asn Glu Val Ile Cys Thr Ser Tyr			
180	185	190	
Tyr Ser Lys Leu Val Pro Leu Glu His Gly Glu Ile His Thr Ser Leu			
195	200	205	
Ile Asn Gly Arg Pro Ser Ala Asp Asp Pro Ser Pro Gln Leu Leu Glu			
210	215	220	
Phe Thr Ser Ala Arg Tyr Ile Arg Leu Arg Leu Gln Arg Ile Arg Thr			
225	230	235	240
Leu Asn Ala Asp Leu Met Thr Leu Ser His Arg Asp Leu Arg Asp Leu			
245	250	255	
Asp Pro Ile Val Thr Arg Arg Tyr Tyr Ser Ile Lys Asp Ile Ser			
260	265	270	
Val Gly Gly Met Cys Ile Cys Tyr Gly His Ala Ser Ser Cys Pro Trp			
275	280	285	
Asp Glu Glu Ala Lys Gln Leu Gln Cys Gln Cys Glu His Asn Thr Cys			
290	295	300	
Gly Glu Ser Cys Asp Arg Cys Cys Pro Gly Tyr His Gln Gln Pro Trp			
305	310	315	320
Arg Pro Gly Thr Ile Ser Ser Gly Asn Glu Cys Glu Glu Cys Asn Cys			
325	330	335	
His Asn Lys Ala Lys Asp Cys Tyr Tyr Asp Ser Ser Val Ala Lys Glu			
340	345	350	
Arg Arg Ser Leu Asn Thr Ala Gly Gln Tyr Ser Gly Gly Val Cys			
355	360	365	
Val Asn Cys Ser Gln Asn Thr Thr Gly Ile Asn Cys Glu Thr Cys Ile			
370	375	380	
Asp Gln Tyr Tyr Arg Pro His Lys Val Ser Pro Tyr Asp Asp His Pro			
385	390	395	400
Cys Arg Pro Cys Asn Cys Asp Pro Val Gly Ser Leu Ser Ser Val Cys			
405	410	415	
Ile Lys Asp Asp Arg His Ala Asp Leu Ala Asn Gly Lys Trp Pro Gly			
420	425	430	
Gln Cys Pro Cys Arg Lys Gly Tyr Ala Gly Asp Lys Cys Asp Arg Cys			
435	440	445	
Gln Phe Gly Tyr Arg Gly Phe Pro Asn Cys Ile Pro Cys Asp Cys Arg			
450	455	460	
Thr Val Gly Ser Leu Asn Glu Asp Pro Cys Ile Glu Pro Cys Leu Cys			
465	470	475	480
Lys Lys Asn Val Glu Gly Lys Asn Cys Asp Arg Cys Lys Pro Gly Phe			
485	490	495	
Tyr Asn Leu Lys Glu Arg Asn Pro Glu Gly Cys Ser Glu Cys Phe Cys			
500	505	510	
Phe Gly Val Ser Gly Val Cys Asp Ser Leu Thr Trp Ser Ile Ser Gln			
515	520	525	
Val Thr Asn Met Ser Gly Trp Leu Val Thr Asp Leu Met Ser Thr Asn			
530	535	540	

Lys Ile Arg Ser Gln Gln Asp Val Leu Gly Gly His Arg Gln Ile Ser
545 550 555 560
Ile Asn Asn Thr Ala Val Met Gln Arg Leu Thr Ser Thr Tyr Tyr Trp
565 570 575
Ala Ala Pro Glu Ala Tyr Leu Gly Asn Lys Leu Thr Ala Phe Gly Gly
580 585 590
Phe Leu Lys Tyr Thr Val Ser Tyr Asp Ile Pro Val Glu Thr Val Asp
595 600 605
Ser Asp Leu Met Ser His Ala Asp Ile Ile Ile Lys Gly Asn Gly Leu
610 615 620
Thr Ile Ser Thr Arg Ala Glu Gly Leu Ser Leu Gln Pro Tyr Glu Glu
625 630 635 640
Tyr Phe Asn Val Val Arg Leu Val Pro Glu Asn Phe Arg Asp Phe Asn
645 650 655
Thr Arg Arg Glu Ile Asp Arg Asp Gln Leu Met Thr Val Leu Ala Asn
660 665 670
Val Thr His Leu Leu Ile Arg Ala Asn Tyr Asn Ser Ala Lys Met Ala
675 680 685
Leu Tyr Arg Leu Asp Ser Val Ser Leu Asp Ile Ala Ser Pro Asn Ala
690 695 700
Ile Asp Leu Ala Val Ala Ala Asp Val Glu His Cys Glu Cys Pro Gln
705 710 715 720
Gly Tyr Thr Gly Thr Ser Cys Glu Ala Cys Leu Pro Gly Tyr Tyr Arg
725 730 735
Val Asp Gly Ile Leu Phe Gly Gly Ile Cys Gln Pro Cys Glu Cys His
740 745 750
Gly His Ala Ser Glu Cys Asp Ile His Gly Ile Cys Ser Val Cys Thr
755 760 765
His Asn Thr Thr Gly Asp His Cys Glu Gln Cys Leu Pro Gly Phe Tyr
770 775 780
Gly Thr Pro Ser Arg Gly Thr Pro Gly Asp Cys Gln Pro Cys Ala Cys
785 790 795 800
Pro Leu Ser Ile Asp Ser Asn Asn Phe Ser Pro Thr Cys His Leu Thr
805 810 815
Asp Gly Glu Glu Val Val Cys Asp Gln Cys Ala Pro Gly Tyr Ser Gly
820 825 830
Ser Trp Cys Glu Arg Cys Ala Asp Gly Tyr Tyr Gly Asn Pro Thr Val
835 840 845
Pro Gly Gly Thr Cys Val Pro Cys Asn Cys Ser Gly Asn Val Asp Pro
850 855 860
Leu Glu Ala Gly His Cys Asp Ser Val Thr Gly Glu Cys Leu Lys Cys
865 870 875 880
Leu Trp Asn Thr Asp Gly Ala His Cys Glu Arg Cys Ala Asp Gly Phe
885 890 895
Tyr Gly Asp Ala Val Thr Ala Lys Asn Cys Arg Ala Cys Asp Cys His
900 905 910
Glu Asn Gly Ser Leu Ser Gly Val Cys His Leu Glu Thr Gly Leu Cys
915 920 925
Asp Cys Lys Pro His Val Thr Gly Gln Gln Cys Asp Gln Cys Leu Ser
930 935 940
Gly Tyr Tyr Gly Leu Asp Thr Gly Leu Gly Cys Val Pro Cys Asn Cys
945 950 955 960
Ser Val Glu Gly Ser Val Ser Asp Asn Cys Thr Glu Glu Gly Gln Cys
965 970 975
His Cys Gly Pro Gly Val Ser Gly Lys Gln Cys Asp Arg Cys Ser His
980 985 990
Gly Phe Tyr Ala Phe Gln Asp Gly Gly Cys Thr Pro Cys Asp Cys Ala
995 1000 1005
His Thr Gln Asn Asn Cys Asp Pro Ala Ser Gly Glu Cys Leu Cys Pro
1010 1015 1020
Pro His Thr Gln Gly Leu Lys Cys Glu Glu Cys Glu Ala Tyr Trp

1025	1030	1035	1040
Gly Leu Asp Pro Glu Gln Gly Cys Gln Ala Cys Asn Cys Ser Ala Val			
1045	1050	1055	
Gly Ser Thr Ser Ala Gln Cys Asp Val Leu Ser Gly His Cys Pro Cys			
1060	1065	1070	
Lys Lys Gly Phe Gly Gly Gln Ser Cys His Gln Cys Ser Leu Gly Tyr			
1075	1080	1085	
Arg Ser Phe Pro Asp Cys Val Pro Cys Gly Cys Asp Leu Arg Gly Thr			
1090	1095	1100	
Leu Pro Asp Thr Cys Asp Leu Glu Gln Gly Leu Cys Ser Cys Ser Glu			
1105	1110	1115	1120
Asp Ser Gly Thr Cys Ser Cys Lys Glu Asn Val Val Gly Pro Gln Cys			
1125	1130	1135	
Ser Lys Cys Gln Ala Gly Thr Phe Ala Leu Arg Gly Asp Asn Pro Gln			
1140	1145	1150	
Gly Cys Ser Pro Cys Phe Cys Phe Gly Leu Ser Gln Leu Cys Ser Glu			
1155	1160	1165	
Leu Glu Gly Tyr Val Arg Thr Leu Ile Thr Leu Ala Ser Asp Gln Pro			
1170	1175	1180	
Leu Leu His Val Val Ser Gln Ser Asn Leu Lys Gly Thr Ile Glu Gly			
1185	1190	1195	1200
Val His Phe Gln Pro Pro Asp Thr Leu Leu Asp Ala Glu Ala Val Arg			
1205	1210	1215	
Gln His Ile Tyr Ala Glu Pro Phe Tyr Trp Arg Leu Pro Lys Gln Phe			
1220	1225	1230	
Gln Gly Asp Gln Leu Leu Ala Tyr Gly Gly Lys Leu Gln Tyr Ser Val			
1235	1240	1245	
Ala Phe Tyr Ser Thr Leu Gly Thr Gly Thr Ser Asn Tyr Glu Pro Gln			
1250	1255	1260	
Val Leu Ile Lys Gly Gly Arg Ala Arg Lys His Val Ile Tyr Met Asp			
1265	1270	1275	1280
Ala Pro Ala Pro Glu Asn Gly Val Arg Gln Asp Tyr Glu Val Gln Met			
1285	1290	1295	
Lys Glu Glu Phe Trp Lys Tyr Phe Asn Ser Val Ser Glu Lys His Val			
1300	1305	1310	
Thr His Ser Asp Phe Met Ser Val Leu Ser Asn Ile Asp Tyr Ile Leu			
1315	1320	1325	
Ile Lys Ala Ser Tyr Gly Gln Gly Leu Gln Gln Ser Arg Ile Ala Asn			
1330	1335	1340	
Ile Ser Met Glu Val Gly Arg Lys Ala Val Glu Leu Pro Ala Glu Gly			
1345	1350	1355	1360
Glu Ala Ala Leu Leu Leu Glu Leu Cys Val Cys Pro Pro Gly Thr Ala			
1365	1370	1375	
Gly His Ser Cys Gln Asp Cys Ala Pro Gly Tyr Tyr Arg Glu Lys Leu			
1380	1385	1390	
Pro Glu Ser Gly Gly Arg Gly Pro Arg Pro Leu Leu Ala Pro Cys Val			
1395	1400	1405	
Pro Cys Asn Cys Asn Asn His Ser Asp Val Cys Asp Pro Glu Thr Gly			
1410	1415	1420	
Lys Cys Leu Ser Cys Arg Asp His Thr Ser Gly Asp His Cys Glu Leu			
1425	1430	1435	1440
Cys Ala Ser Gly Tyr Tyr Gly Lys Val Thr Gly Leu Pro Gly Asp Cys			
1445	1450	1455	
Thr Pro Cys Thr Cys Pro His His Pro Pro Phe Ser Phe Ser Pro Thr			
1460	1465	1470	
Cys Val Val Glu Gly Asp Ser Asp Phe Arg Cys Asn Ala Cys Leu Pro			
1475	1480	1485	
Gly Tyr Glu Gly Gln Tyr Cys Glu Arg Cys Ser Ala Gly Tyr His Gly			
1490	1495	1500	
Asn Pro Arg Ala Ala Gly Gly Ser Cys Gln Thr Cys Asp Cys Asn Pro			
1505	1510	1515	1520

Gln Gly Ser Val His Ser Asp Cys Asp Arg Ala Ser Gly Gln Cys Val
1525 1530 1535
Cys Lys Pro Gly Ala Thr Gly Leu His Cys Glu Lys Cys Leu Pro Arg
1540 1545 1550
His Ile Leu Met Glu Ser Asp Cys Val Ser Cys Asp Asp Asp Cys Val
1555 1560 1565
Gly Pro Leu Leu Asn Asp Leu Asp Ser Val Gly Asp Ala Val Leu Ser
1570 1575 1580
Leu Asn Leu Thr Gly Val Ser Pro Ala Pro Tyr Gly Ile Leu Glu Asn
1585 1590 1595 1600
Leu Glu Asn Thr Thr Lys Tyr Phe Gln Arg Tyr Leu Ile Lys Glu Asn
1605 1610 1615
Ala Lys Ile Arg Ala Glu Ile Gln Leu Glu Gly Ile Ala Glu Gln
1620 1625 1630
Thr Glu Asn Leu Gln Lys Glu Leu Thr Arg Val Leu Ala Arg His Gln
1635 1640 1645
Lys Val Asn Ala Glu Met Glu Arg Thr Ser Asn Gly Thr Gln Ala Leu
1650 1655 1660
Ala Thr Phe Ile Glu Gln Leu His Ala Asn Ile Lys Glu Ile Thr Glu
1665 1670 1675 1680
Lys Val Ala Thr Leu Asn Gln Thr Ala Arg Lys Asp Phe Gln Pro Pro
1685 1690 1695
Val Ser Ala Leu Gln Ser Met His Gln Asn Ile Ser Ser Leu Leu Gly
1700 1705 1710
Leu Ile Lys Glu Arg Asn Phe Thr Glu Met Gln Gln Asn Ala Thr Leu
1715 1720 1725
Glu Leu Lys Ala Ala Lys Asp Leu Leu Ser Arg Ile Gln Lys Arg Phe
1730 1735 1740
Gln Lys Pro Gln Glu Lys Leu Lys Ala Leu Lys Glu Ala Asn Ser Leu
1745 1750 1755 1760
Leu Ser Asn His Ser Glu Lys Leu Gln Ala Ala Glu Glu Leu Lys
1765 1770 1775
Glu Ala Gly Ser Lys Thr Gln Glu Ser Asn Leu Leu Leu Leu Val
1780 1785 1790
Lys Ala Asn Leu Lys Glu Glu Phe Gln Glu Lys Lys Leu Arg Val Gln
1795 1800 1805
Glu Glu Gln Asn Val Thr Ser Glu Leu Ile Ala Lys Gly Arg Glu Trp
1810 1815 1820
Val Asp Ala Ala Gly Thr His Thr Ala Ala Gln Asp Thr Leu Thr
1825 1830 1835 1840
Gln Leu Glu His His Arg Asp Glu Leu Leu Leu Trp Ala Arg Lys Ile
1845 1850 1855
Arg Ser His Val Asp Asp Leu Val Met Gln Met Ser Lys Arg Arg Ala
1860 1865 1870
Arg Asp Leu Val His Arg Ala Glu Gln His Ala Ser Glu Leu Gln Ser
1875 1880 1885
Arg Ala Gly Ala Leu Asp Arg Asp Leu Glu Asn Val Arg Asn Val Ser
1890 1895 1900
Leu Asn Ala Thr Ser Ala Ala His Val His Ser Asn Ile Gln Thr Leu
1905 1910 1915 1920
Thr Glu Glu Ala Glu Met Leu Ala Ala Asp Ala His Lys Thr Ala Asn
1925 1930 1935
Lys Thr Asp Leu Ile Ser Glu Ser Leu Ala Ser Arg Gly Lys Ala Val
1940 1945 1950
Leu Gln Arg Ser Ser Arg Phe Leu Lys Glu Ser Val Gly Thr Arg Arg
1955 1960 1965
Lys Gln Gln Gly Ile Thr Met Lys Leu Asp Glu Leu Lys Asn Leu Thr
1970 1975 1980
Ser Gln Phe Gln Glu Ser Val Asp Asn Ile Thr Lys Gln Ala Asn Asp
1985 1990 1995 2000
Ser Leu Ala Met Leu Arg Glu Ser Pro Gly Gly Met Arg Glu Lys Gly

2005	2010	2015
Arg Lys Ala Arg Glu Leu Ala Ala Ala Asn Glu Ser Ala Val Lys		
2020	2025	2030
Thr Leu Glu Asp Val Leu Ala Leu Ser Leu Arg Val Phe Asn Thr Ser		
2035	2040	2045
Glu Asp Leu Ser Arg Val Asn Ala Thr Val Gln Glu Thr Asn Asp Leu		
2050	2055	2060
Leu His Asn Ser Thr Met Thr Thr Leu Leu Ala Gly Arg Lys Met Lys		
2065	2070	2075
Asp Met Glu Met Gln Ala Asn Leu Leu Leu Asp Arg Leu Lys Pro Leu		
2085	2090	2095
Lys Thr Leu Glu Asn Leu Ser Arg Asn Leu Ser Glu Ile Lys Leu		
2100	2105	2110
Leu Ile Ser Arg Ala Arg Lys Gln Ala Ala Ser Ile Lys Val Ala Val		
2115	2120	2125
Ser Ala Asp Arg Asp Cys Ile Arg Ala Tyr Gln Pro Gln Thr Ser Ser		
2130	2135	2140
Thr Asn Tyr Asn Thr Leu Ile Leu Asn Val Lys Thr Gln Glu Pro Asp		
2145	2150	2155
Asn Leu Leu Phe Tyr Leu Gly Ser Ser Ser Ser Asp Phe Leu Ala		
2165	2170	2175
Val Glu Met Arg Arg Gly Lys Val Ala Phe Leu Trp Asp Leu Gly Ser		
2180	2185	2190
Gly Ser Thr Arg Leu Glu Phe Pro Glu Val Ser Ile Asn Asn Asn Arg		
2195	2200	2205
Trp His Ser Ile Tyr Ile Thr Arg Phe Gly Asn Met Gly Ser Leu Ser		
2210	2215	2220
Val Lys Glu Ala Ser Ala Ala Glu Asn Pro Pro Val Arg Thr Ser Lys		
2225	2230	2235
Ser Pro Gly Pro Ser Lys Val Leu Asp Ile Asn Asn Ser Thr Leu Met		
2245	2250	2255
Phe Val Gly Gly Gly Gln Ile Lys Lys Ser Pro Ala Val Lys		
2260	2265	2270
Val Thr His Phe Lys Gly Cys Met Gly Glu Ala Phe Leu Asn Gly Lys		
2275	2280	2285
Ser Ile Gly Leu Trp Asn Tyr Ile Glu Arg Glu Gly Lys Cys Asn Gly		
2290	2295	2300
Cys Phe Gly Ser Ser Gln Asn Glu Asp Ser Ser Phe His Phe Asp Gly		
2305	2310	2315
Ser Gly Tyr Ala Met Val Glu Lys Thr Leu Arg Pro Thr Val Thr Gln		
2325	2330	2335
Ile Val Ile Leu Phe Ser Thr Phe Ser Pro Asn Gly Leu Leu Phe Tyr		
2340	2345	2350
Leu Ala Ser Asn Gly Thr Lys Asp Phe Leu Ser Ile Glu Leu Val Arg		
2355	2360	2365
Gly Arg Val Lys Val Met Val Asp Leu Gly Ser Gly Pro Leu Thr Leu		
2370	2375	2380
Met Thr Asp Arg Arg Tyr Asn Asn Gly Thr Trp Tyr Lys Ile Ala Phe		
2385	2390	2395
Gln Arg Asn Arg Lys Gln Gly Leu Leu Ala Val Phe Asp Ala Tyr Asp		
2405	2410	2415
Thr Ser Asp Lys Glu Thr Lys Gln Gly Glu Thr Pro Gly Ala Ala Ser		
2420	2425	2430
Asp Leu Asn Arg Leu Glu Lys Asp Leu Ile Tyr Val Gly Gly Leu Pro		
2435	2440	2445
His Ser Lys Ala Val Arg Lys Gly Val Ser Ser Arg Ser Tyr Val Gly		
2450	2455	2460
Cys Ile Lys Asn Leu Glu Ile Ser Arg Ser Thr Phe Asp Leu Leu Arg		
2465	2470	2475
Asn Ser Tyr Gly Val Arg Lys Gly Cys Ala Leu Glu Pro Ile Gln Ser		
2485	2490	2495

Val Ser Phe Leu Arg Gly Gly Tyr Val Glu Met Pro Pro Lys Ser Leu
2500 2505 2510
Ser Pro Glu Ser Ser Leu Leu Ala Thr Phe Ala Thr Lys Asn Ser Ser
2515 2520 2525
Gly Ile Leu Leu Val Ala Leu Gly Lys Asp Ala Glu Glu Ala Gly Gly
2530 2535 2540
Ala Gln Ala His Val Pro Phe Phe Ser Ile Met Leu Leu Glu Gly Arg
2545 2550 2555 2560
Ile Glu Val His Val Asn Ser Gly Asp Gly Thr Ser Leu Arg Lys Ala
2565 2570 2575
Leu Leu His Ala Pro Thr Gly Ser Tyr Ser Asp Gly Gln Glu His Ser
2580 2585 2590
Ile Ser Leu Val Arg Asn Arg Arg Val Ile Thr Ile Gln Val Asp Glu
2595 2600 2605
Asn Ser Pro Val Glu Met Lys Leu Gly Pro Leu Thr Glu Gly Lys Thr
2610 2615 2620
Ile Asp Ile Ser Asn Leu Tyr Ile Gly Gly Leu Pro Glu Asp Lys Ala
2625 2630 2635 2640
Thr Pro Met Leu Lys Met Arg Thr Ser Phe His Gly Cys Ile Lys Asn
2645 2650 2655
Val Val Leu Asp Ala Gln Leu Leu Asp Phe Thr His Ala Thr Gly Ser
2660 2665 2670
Glu Gln Val Glu Leu Asp Thr Cys Leu Leu Ala Glu Glu Pro Met Gln
2675 2680 2685
Ser Leu His Arg Glu His Gly Glu Leu Pro Pro Glu Pro Pro Thr Leu
2690 2695 2700
Pro Gln Pro Glu Leu Cys Ala Val Asp Thr Ala Pro Gly Tyr Val Ala
2705 2710 2715 2720
Gly Ala His Gln Phe Gly Leu Ser Gln Asn Ser His Leu Val Leu Pro
2725 2730 2735
Leu Asn Gln Ser Asp Val Arg Lys Arg Leu Gln Val Gln Leu Ser Ile
2740 2745 2750
Arg Thr Phe Ala Ser Ser Gly Leu Ile Tyr Tyr Val Ala His Gln Asn
2755 2760 2765
Gln Met Asp Tyr Ala Thr Leu Gln Leu Gln Glu Gly Arg Leu His Phe
2770 2775 2780
Met Phe Asp Leu Gly Lys Gly Arg Thr Lys Val Ser His Pro Ala Leu
2785 2790 2795 2800
Leu Ser Asp Gly Lys Trp His Thr Val Lys Thr Glu Tyr Ile Lys Arg
2805 2810 2815
Lys Ala Phe Met Thr Val Asp Gly Gln Glu Ser Pro Ser Val Thr Val
2820 2825 2830
Val Gly Asn Ala Thr Thr Leu Asp Val Glu Arg Lys Leu Tyr Leu Gly
2835 2840 2845
Gly Leu Pro Ser His Tyr Arg Ala Arg Asn Ile Gly Thr Ile Thr His
2850 2855 2860
Ser Ile Pro Ala Cys Ile Gly Glu Ile Met Val Asn Gly Gln Gln Leu
2865 2870 2875 2880
Asp Lys Asp Arg Pro Leu Ser Ala Ser Ala Val Asp Arg Cys Tyr Val
2885 2890 2895
Val Ala Gln Glu Gly Thr Phe Phe Glu Gly Ser Gly Tyr Ala Ala Leu
2900 2905 2910
Val Lys Glu Gly Tyr Lys Val Arg Leu Asp Leu Asn Ile Thr Leu Glu
2915 2920 2925
Phe Arg Thr Thr Ser Lys Asn Gly Val Leu Leu Gly Ile Ser Ser Ala
2930 2935 2940
Lys Val Asp Ala Ile Gly Leu Glu Ile Val Asp Gly Lys Val Leu Phe
2945 2950 2955 2960
His Val Asn Asn Gly Ala Gly Arg Ile Thr Ala Thr Tyr Gln Pro Arg
2965 2970 2975
Ala Ala Arg Ala Leu Cys Asp Gly Lys Trp His Thr Leu Gln Ala His

2980	2985	2990
Lys Ser Lys His Arg Ile Val Leu Thr Val Asp Gly Asn Ser Val Arg		
2995	3000	3005
Ala Glu Ser Pro His Thr His Ser Thr Ser Ala Asp Thr Asn Asp Pro		
3010	3015	3020
Ile Tyr Val Gly Gly Tyr Pro Ala His Ile Lys Gln Asn Cys Leu Ser		
3025	3030	3035
Ser Arg Ala Ser Phe Arg Gly Cys Val Arg Asn Leu Arg Leu Ser Arg		
3045	3050	3055
Gly Ser Gln Val Gln Ser Leu Asp Leu Ser Arg Ala Phe Asp Leu Gln		
3060	3065	3070
Gly Val Phe Pro His Ser Cys Pro Gly Pro Glu Pro		
3075	3080	

<210> 5
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 <212> PRT
 <213> Homo Sapiens

<300>
 <308> Swissprot P25391
 <309> 1992-05-01

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Cys Arg Gln Arg Gly Leu Phe Pro Ala Ile Leu Asn Leu Ala Ser Asn			
20	25	30	
Ala His Ile Ser Thr Asn Ala Thr Cys Gly Glu Lys Gly Pro Glu Met			
35	40	45	
Phe Cys Lys Leu Val Glu His Val Pro Gly Arg Pro Val Arg Asn Pro			
50	55	60	
Gln Cys Arg Ile Cys Asp Gly Asn Ser Ala Asn Pro Arg Glu Arg His			
65	70	75	80
Pro Ile Ser His Ala Ile Asp Gly Thr Asn Asn Trp Trp Gln Ser Pro			
85	90	95	
Ser Ile Gln Asn Gly Arg Glu Tyr His Trp Val Thr Ile Thr Leu Asp			
100	105	110	
Leu Arg Gln Val Phe Gln Val Ala Tyr Val Ile Ile Lys Ala Ala Asn			
115	120	125	
Ala Pro Arg Pro Gly Asn Trp Ile Leu Glu Arg Ser Leu Asp Gly Thr			
130	135	140	
Thr Phe Ser Pro Trp Gln Tyr Tyr Ala Val Ser Asp Ser Glu Cys Leu			
145	150	155	160
Ser Arg Tyr Asn Ile Thr Pro Arg Arg Gly Pro Pro Thr Tyr Arg Ala			
165	170	175	
Asp Asp Glu Val Ile Cys Thr Ser Tyr Tyr Ser Arg Leu Val Pro Leu			
180	185	190	
Glu His Gly Glu Ile His Thr Ser Leu Ile Asn Gly Arg Pro Ser Ala			
195	200	205	
Asp Asp Leu Ser Pro Lys Leu Leu Glu Phe Thr Ser Ala Arg Tyr Ile			
210	215	220	
Arg Leu Arg Leu Gln Arg Ile Arg Thr Leu Asn Ala Asp Leu Met Thr			
225	230	235	240
Leu Ser His Arg Glu Pro Lys Glu Leu Asp Pro Ile Val Thr Arg Arg			
245	250	255	
Tyr Tyr Tyr Ser Ile Lys Asp Ile Ser Val Gly Gly Met Cys Ile Cys			
260	265	270	
Tyr Gly His Ala Ser Ser Cys Pro Trp Asp Glu Thr Thr Lys Lys Leu			
275	280	285	

Gln Cys Gln Cys Glu His Asn Thr Cys Gly Glu Ser Cys Asn Arg Cys
290 295 300
Cys Pro Gly Tyr His Gln Gln Pro Trp Arg Pro Gly Thr Val Ser Ser
305 310 315 320
Gly Asn Thr Cys Glu Ala Cys Asn Cys His Asn Lys Ala Lys Asp Cys
325 330 335
Tyr Tyr Asp Glu Ser Val Ala Lys Gln Lys Lys Ser Leu Asn Thr Ala
340 345 350
Gly Gln Phe Arg Gly Gly Val Cys Ile Asn Cys Leu Gln Asn Thr
355 360 365
Met Gly Ile Asn Cys Glu Thr Cys Ile Asp Gly Tyr Tyr Arg Pro His
370 375 380
Lys Val Ser Pro Tyr Glu Asp Glu Pro Cys Arg Pro Cys Asn Cys Asp
385 390 395 400
Pro Val Gly Ser Leu Ser Ser Val Cys Ile Lys Asp Asp Leu His Ser
405 410 415
Asp Leu His Asn Gly Lys Gln Pro Gly Gln Cys Pro Cys Lys Glu Gly
420 425 430
Tyr Thr Gly Glu Lys Cys Asp Arg Cys Gln Leu Gly Tyr Lys Asp Tyr
435 440 445
Pro Thr Cys Val Ser Cys Gly Cys Asn Pro Val Gly Ser Ala Ser Asp
450 455 460
Glu Pro Cys Thr Gly Pro Cys Val Cys Lys Glu Asn Val Glu Gly Lys
465 470 475 480
Ala Cys Asp Arg Cys Lys Pro Gly Phe Tyr Asn Leu Lys Glu Lys Asn
485 490 495
Pro Arg Gly Cys Ser Glu Cys Phe Cys Phe Gly Val Ser Asp Val Cys
500 505 510
Ser Ser Leu Ser Trp Pro Val Gly Gln Val Asn Ser Met Ser Gly Trp
515 520 525
Leu Val Thr Asp Leu Ile Ser Pro Arg Lys Ile Pro Ser Gln Gln Asp
530 535 540
Ala Leu Gly Gly Arg His Gln Val Ser Ile Asn Asn Thr Ala Val Met
545 550 555 560
Gln Arg Leu Ala Pro Lys Tyr Tyr Trp Ala Ala Pro Glu Ala Tyr Leu
565 570 575
Gly Asn Lys Leu Thr Ala Phe Gly Gly Phe Leu Lys Tyr Thr Val Ser
580 585 590
Tyr Asp Ile Pro Val Glu Thr Val Asp Ser Asn Leu Met Ser His Ala
595 600 605
Asp Val Ile Ile Lys Gly Asn Gly Leu Thr Leu Ser Thr Gln Ala Glu
610 615 620
Gly Leu Ser Leu Gln Pro Tyr Glu Glu Tyr Leu Asn Val Val Arg Leu
625 630 635 640
Val Pro Glu Asn Phe Gln Asp Phe His Ser Lys Arg Gln Ile Asp Arg
645 650 655
Asp Gln Leu Met Thr Val Leu Ala Asn Val Thr His Leu Leu Ile Arg
660 665 670
Ala Thr Tyr Asn Ser Ala Lys Met Ala Leu Tyr Arg Leu Glu Ser Val
675 680 685
Ser Leu Asp Ile Ala Ser Ser Asn Ala Ile Asp Leu Val Val Ala Ala
690 695 700
Asp Val Glu His Cys Glu Cys Pro Gln Gly Tyr Thr Gly Thr Ser Cys
705 710 715 720
Glu Ser Cys Leu Ser Gly Tyr Tyr Arg Val Asp Gly Ile Leu Phe Gly
725 730 735
Gly Ile Cys Gln Pro Cys Glu Cys His Gly His Ala Ala Glu Cys Asn
740 745 750
Val His Gly Val Cys Ile Ala Cys Ala His Asn Thr Thr Gly Val His
755 760 765
Cys Glu Gln Cys Leu Pro Gly Phe Tyr Gly Glu Pro Ser Arg Gly Thr

	770	775	780	
Pro Gly Asp Cys Gln Pro Cys Ala Cys Pro Leu Thr Ile Ala Ser Asn				
785	790	795	800	
Asn Phe Ser Pro Thr Cys His Leu Asn Asp Gly Asp Glu Val Val Cys				
	805	810	815	
Asp Trp Cys Ala Pro Gly Tyr Ser Gly Ala Trp Cys Glu Arg Cys Ala				
	820	825	830	
Asp Gly Tyr Tyr Gly Asn Pro Thr Val Pro Gly Glu Ser Cys Val Pro				
	835	840	845	
Cys Asp Cys Ser Gly Asn Val Asp Pro Ser Glu Ala Gly His Cys Asp				
	850	855	860	
Ser Val Thr Gly Glu Cys Leu Lys Cys Leu Gly Asn Thr Asp Gly Ala				
	865	870	875	880
His Cys Glu Arg Cys Ala Asp Gly Phe Tyr Gly Asp Ala Val Thr Ala				
	885	890	895	
Lys Asn Cys Arg Ala Cys Glu Cys His Val Lys Gly Ser His Ser Ala				
	900	905	910	
Val Cys His Leu Glu Thr Gly Leu Cys Asp Cys Lys Pro Asn Val Thr				
	915	920	925	
Gly Gln Gln Cys Asp Gln Cys Leu His Gly Tyr Tyr Gly Leu Asp Ser				
	930	935	940	
Gly His Gly Cys Arg Pro Cys Asn Cys Ser Val Ala Gly Ser Val Ser				
	945	950	955	960
Asp Gly Cys Thr Asp Glu Gly Gln Cys His Cys Val Pro Gly Val Ala				
	965	970	975	
Gly Lys Arg Cys Asp Arg Cys Ala His Gly Phe Tyr Ala Tyr Gln Asp				
	980	985	990	
Gly Ser Cys Thr Pro Cys Asp Cys Pro His Thr Gln Asn Thr Cys Asp				
	995	1000	1005	
Pro Glu Thr Gly Glu Cys Val Cys Pro Pro His Thr Gln Gly Gly Lys				
	1010	1015	1020	
Cys Glu Glu Cys Glu Asp Gly His Trp Gly Tyr Asp Ala Glu Val Gly				
	1025	1030	1035	1040
Cys Gln Ala Cys Asn Cys Ser Leu Val Gly Ser Thr His His Arg Cys				
	1045	1050	1055	
Asp Val Val Thr Gly His Cys Gln Cys Lys Ser Lys Phe Gly Gly Arg				
	1060	1065	1070	
Ala Cys Asp Gln Cys Ser Leu Gly Tyr Arg Asp Phe Pro Asp Cys Val				
	1075	1080	1085	
Pro Cys Asp Cys Asp Leu Arg Gly Thr Ser Gly Asp Ala Cys Asn Leu				
	1090	1095	1100	
Glu Gln Gly Leu Cys Gly Cys Val Glu Glu Thr Gly Ala Cys Pro Cys				
	1105	1110	1115	1120
Lys Glu Asn Val Phe Gly Pro Gln Cys Asn Glu Cys Arg Glu Gly Thr				
	1125	1130	1135	
Phe Ala Leu Arg Ala Asp Asn Pro Leu Gly Cys Ser Pro Cys Phe Cys				
	1140	1145	1150	
Ser Gly Leu Ser His Leu Cys Ser Glu Leu Glu Asp Tyr Val Arg Thr				
	1155	1160	1165	
Pro Val Thr Leu Gly Ser Asp Gln Pro Leu Leu Arg Val Val Ser Gln				
	1170	1175	1180	
Ser Asn Leu Arg Gly Thr Thr Glu Gly Val Tyr Tyr Gln Ala Pro Asp				
	1185	1190	1195	1200
Phe Leu Leu Asp Ala Ala Thr Val Arg Gln His Ile Arg Ala Glu Pro				
	1205	1210	1215	
Phe Tyr Trp Arg Leu Pro Gln Gln Phe Gln Gly Asp Gln Leu Met Ala				
	1220	1225	1230	
Tyr Gly Gly Lys Leu Lys Tyr Ser Val Ala Phe Tyr Ser Leu Asp Gly				
	1235	1240	1245	
Val Gly Thr Ser Asn Phe Glu Pro Gln Val Leu Ile Lys Gly Gly Arg				
	1250	1255	1260	

Ile Arg Lys Gln Val Ile Tyr Met Asp Ala Pro Ala Pro Glu Asn Gly
1265 1270 1275 1280
Val Arg Gln Glu Gln Glu Val Ala Met Arg Glu Asn Phe Trp Lys Tyr
1285 1290 1295
Phe Asn Ser Val Ser Glu Lys Pro Val Thr Arg Glu Asp Phe Met Ser
1300 1305 1310
Val Leu Ser Asp Ile Glu Tyr Ile Leu Ile Lys Ala Ser Tyr Gly Gln
1315 1320 1325
Gly Leu Gln Gln Ser Arg Ile Ser Asp Ile Ser Val Glu Val Gly Arg
1330 1335 1340
Lys Ala Glu Lys Leu His Pro Glu Glu Val Ala Ser Leu Leu Glu
1345 1350 1355 1360
Asn Cys Val Cys Pro Pro Gly Thr Val Gly Phe Ser Cys Gln Asp Cys
1365 1370 1375
Ala Pro Gly Tyr His Arg Gly Lys Leu Pro Ala Gly Ser Asp Arg Gly
1380 1385 1390
Pro Arg Pro Leu Val Ala Pro Cys Val Pro Cys Ser Cys Asn Asn His
1395 1400 1405
Ser Asp Thr Cys Asp Pro Asn Thr Gly Lys Cys Leu Asn Cys Gly Asp
1410 1415 1420
Asn Thr Ala Gly Asp His Cys Asp Val Cys Thr Ser Gly Tyr Tyr Gly
1425 1430 1435 1440
Lys Val Thr Gly Ser Ala Ser Asp Cys Ala Leu Cys Ala Cys Pro His
1445 1450 1455
Ser Pro Pro Ala Ser Phe Ser Pro Thr Cys Val Leu Glu Gly Asp His
1460 1465 1470
Asp Phe Arg Cys Asp Ala Cys Leu Leu Gly Tyr Glu Gly Lys His Cys
1475 1480 1485
Glu Arg Cys Ser Ser Ser Tyr Tyr Gly Asn Pro Gln Thr Pro Gly Gly
1490 1495 1500
Ser Cys Gln Lys Cys Asp Cys Asn Arg His Gly Ser Val His Gly Asp
1505 1510 1515 1520
Cys Asp Arg Thr Ser Gly Gln Cys Val Cys Arg Leu Gly Ala Ser Gly
1525 1530 1535
Leu Arg Cys Asp Glu Cys Glu Pro Arg His Ile Leu Met Glu Thr Asp
1540 1545 1550
Cys Val Ser Cys Asp Asp Glu Cys Val Gly Val Leu Leu Asn Asp Leu
1555 1560 1565
Asp Glu Ile Gly Asp Ala Val Leu Ser Leu Asn Leu Thr Gly Ile Ile
1570 1575 1580
Pro Val Pro Tyr Gly Ile Leu Ser Asn Leu Glu Asn Thr Thr Lys Tyr
1585 1590 1595 1600
Leu Gln Glu Ser Leu Leu Lys Glu Asn Met Gln Lys Asp Leu Gly Lys
1605 1610 1615
Ile Lys Leu Glu Gly Val Ala Glu Glu Thr Asp Asn Leu Gln Lys Lys
1620 1625 1630
Leu Thr Arg Met Leu Ala Ser Thr Gln Lys Val Asn Arg Ala Thr Glu
1635 1640 1645
Arg Ile Phe Lys Glu Ser Gln Asp Leu Ala Val Ala Ile Glu Arg Leu
1650 1655 1660
Gln Met Ser Ile Thr Glu Ile Met Glu Lys Thr Thr Leu Asn Gln Thr
1665 1670 1675 1680
Leu Asp Glu Asp Phe Leu Leu Pro Asn Ser Thr Leu Gln Asn Met Gln
1685 1690 1695
Gln Asn Gly Thr Ser Leu Leu Glu Ile Met Gln Ile Arg Asp Phe Thr
1700 1705 1710
Gln Leu His Gln Asn Ala Thr Leu Glu Leu Lys Ala Ala Glu Asp Leu
1715 1720 1725
Leu Ser Gln Ile Gln Glu Asn Tyr Gln Lys Pro Leu Glu Glu Leu Glu
1730 1735 1740
Val Leu Lys Glu Ala Ala Ser His Val Leu Ser Lys His Asn Asn Glu

1745	1750	1755	1760
Leu Lys Ala Ala Glu Ala Leu Val Arg Glu Ala Glu Ala Lys Met Gln			
1765	1770	1775	
Glu Ser Asn His Leu Leu Leu Met Val Asn Ala Asn Leu Arg Glu Phe			
1780	1785	1790	
Ser Asp Lys Lys Leu His Val Gln Glu Glu Gln Asn Leu Thr Ser Glu			
1795	1800	1805	
Leu Ile Val Gln Gly Arg Gly Leu Ile Asp Ala Ala Ala Gln Thr			
1810	1815	1820	
Asp Ala Val Gln Asp Ala Leu Glu His Leu Glu Asp His Gln Asp Lys			
1825	1830	1835	1840
Leu Leu Leu Trp Ser Ala Lys Ile Arg His His Ile Asp Asp Leu Val			
1845	1850	1855	
Met His Met Ser Gln Arg Asn Ala Val Asp Leu Val Tyr Arg Ala Glu			
1860	1865	1870	
Asp His Ala Thr Glu Phe Gln Arg Leu Ala Asp Val Leu Tyr Ser Gly			
1875	1880	1885	
Leu Glu Asn Ile Arg Asn Val Ser Leu Asn Ala Thr Ser Ala Ala Tyr			
1890	1895	1900	
Val His Tyr Asn Ile Gln Ser Leu Ile Glu Glu Ser Glu Glu Leu Ala			
1905	1910	1915	1920
Arg Asp Ala His Arg Thr Val Thr Glu Thr Ser Leu Leu Ser Glu Ser			
1925	1930	1935	
Leu Val Ser Asn Gly Lys Ala Ala Val Gln Arg Ser Ser Arg Phe Leu			
1940	1945	1950	
Lys Glu Gly Asn Asn Leu Ser Arg Lys Leu Pro Gly Ile Ala Leu Glu			
1955	1960	1965	
Leu Ser Glu Leu Arg Asn Lys Thr Asn Arg Phe Gln Glu Asn Ala Val			
1970	1975	1980	
Glu Ile Thr Arg Gln Thr Asn Glu Ser Leu Leu Ile Leu Arg Ala Ile			
1985	1990	1995	2000
Pro Glu Gly Ile Arg Asp Lys Gly Ala Lys Thr Lys Glu Leu Ala Thr			
2005	2010	2015	
Ser Ala Ser Gln Ser Ala Val Ser Thr Leu Arg Asp Val Ala Gly Leu			
2020	2025	2030	
Ser Gln Glu Leu Leu Asn Thr Ser Ala Ser Leu Ser Arg Val Asn Thr			
2035	2040	2045	
Thr Leu Arg Glu Thr His Gln Leu Leu Gln Asp Ser Thr Met Ala Thr			
2050	2055	2060	
Leu Leu Ala Gly Arg Lys Val Lys Asp Val Glu Ile Gln Ala Asn Leu			
2065	2070	2075	2080
Leu Phe Asp Arg Leu Lys Pro Leu Lys Met Leu Glu Glu Asn Leu Ser			
2085	2090	2095	
Arg Asn Leu Ser Glu Ile Lys Leu Leu Ile Ser Gln Ala Arg Lys Gln			
2100	2105	2110	
Ala Ala Ser Ile Lys Val Ala Val Ser Ala Asp Arg Asp Cys Ile Arg			
2115	2120	2125	
Ala Tyr Gln Pro Gln Ile Ser Ser Thr Asn Tyr Asn Thr Leu Thr Leu			
2130	2135	2140	
Asn Val Lys Thr Gln Glu Pro Asp Asn Leu Leu Phe Tyr Leu Gly Ser			
2145	2150	2155	2160
Ser Thr Ala Ser Asp Phe Leu Ala Val Glu Met Arg Arg Gly Arg Val			
2165	2170	2175	
Ala Phe Leu Trp Asp Leu Gly Ser Gly Ser Thr Arg Leu Glu Phe Pro			
2180	2185	2190	
Asp Phe Pro Ile Asp Asp Asn Arg Trp His Ser Ile His Val Ala Arg			
2195	2200	2205	
Phe Gly Asn Ile Gly Ser Leu Ser Val Lys Glu Met Ser Ser Asn Gln			
2210	2215	2220	
Lys Ser Pro Thr Lys Thr Ser Lys Ser Pro Gly Thr Ala Asn Val Leu			
2225	2230	2235	2240

Asp Val Asn Asn Ser Thr Leu Met Phe Val Gly Gly Leu Gly Gly Gln
2245 2250 2255
Ile Lys Lys Ser Pro Ala Val Lys Val Thr His Phe Lys Gly Cys Leu
2260 2265 2270
Gly Glu Ala Phe Leu Asn Gly Lys Ser Ile Gly Leu Trp Asn Tyr Ile
2275 2280 2285
Glu Arg Glu Gly Lys Cys Arg Gly Cys Phe Gly Ser Ser Gln Asn Glu
2290 2295 2300
Asp Pro Ser Phe His Phe Asp Gly Ser Gly Tyr Ser Val Val Glu Lys
2305 2310 2315 2320
Ser Leu Pro Ala Thr Val Thr Gln Ile Ile Met Leu Phe Asn Thr Phe
2325 2330 2335
Ser Pro Asn Gly Leu Leu Leu Tyr Leu Gly Ser Tyr Gly Thr Lys Asp
2340 2345 2350
Phe Leu Ser Ile Glu Leu Phe Arg Gly Arg Val Lys Val Met Thr Asp
2355 2360 2365
Leu Gly Ser Gly Pro Ile Thr Leu Leu Thr Asp Arg Arg Tyr Asn Asn
2370 2375 2380
Gly Thr Trp Tyr Lys Ile Ala Phe Gln Arg Asn Arg Lys Gln Gly Val
2385 2390 2395 2400
Leu Ala Val Ile Asp Ala Tyr Asn Thr Ser Asn Lys Glu Thr Lys Gln
2405 2410 2415
Gly Glu Thr Pro Gly Ala Ser Ser Asp Leu Asn Arg Leu Asp Lys Asp
2420 2425 2430
Pro Ile Tyr Val Gly Gly Leu Pro Arg Ser Arg Val Val Arg Arg Gly
2435 2440 2445
Val Thr Thr Lys Ser Phe Val Gly Cys Ile Lys Asn Leu Glu Ile Ser
2450 2455 2460
Arg Ser Thr Phe Asp Leu Leu Arg Asn Ser Tyr Gly Val Arg Lys Gly
2465 2470 2475 2480
Cys Leu Leu Glu Pro Ile Arg Ser Val Ser Phe Leu Lys Gly Gly Tyr
2485 2490 2495
Ile Glu Leu Pro Pro Lys Ser Leu Ser Pro Glu Ser Glu Trp Leu Val
2500 2505 2510
Thr Phe Ala Thr Thr Asn Ser Ser Gly Ile Ile Leu Ala Ala Leu Gly
2515 2520 2525
Gly Asp Val Glu Lys Arg Gly Asp Arg Glu Glu Ala His Val Pro Phe
2530 2535 2540
Phe Ser Val Met Leu Ile Gly Gly Asn Ile Glu Val His Val Asn Pro
2545 2550 2555 2560
Gly Asp Gly Thr Gly Leu Arg Lys Ala Leu Leu His Ala Pro Thr Gly
2565 2570 2575
Thr Cys Ser Asp Gly Gln Ala His Ser Ile Ser Leu Val Arg Asn Arg
2580 2585 2590
Arg Ile Ile Thr Val Gln Leu Asp Glu Asn Asn Pro Val Glu Met Lys
2595 2600 2605
Leu Gly Thr Leu Val Glu Ser Arg Thr Ile Asn Val Ser Asn Leu Tyr
2610 2615 2620
Val Gly Gly Ile Pro Glu Gly Glu Gly Thr Ser Leu Leu Thr Met Arg
2625 2630 2635 2640
Arg Ser Phe His Gly Cys Ile Lys Asn Leu Ile Phe Asn Leu Glu Leu
2645 2650 2655
Leu Asp Phe Asn Ser Ala Val Gly His Glu Gln Val Asp Leu Asp Thr
2660 2665 2670
Cys Trp Leu Ser Glu Arg Pro Lys Leu Ala Pro Asp Ala Glu Asp Ser
2675 2680 2685
Lys Leu Leu Arg Glu Pro Arg Ala Phe Pro Glu Gln Cys Val Val Asp
2690 2695 2700
Ala Ala Leu Glu Tyr Val Pro Gly Ala His Gln Phe Gly Leu Thr Gln
2705 2710 2715 2720
Asn Ser His Phe Ile Leu Pro Phe Asn Gln Ser Ala Val Arg Lys Lys

2725	2730	2735
Leu Ser Val Glu Leu Ser Ile Arg Thr Phe Ala Ser Ser Gly Leu Ile		
2740	2745	2750
Tyr Tyr Met Ala His Gln Asn Gln Ala Asp Tyr Ala Val Leu Gln Leu		
2755	2760	2765
His Gly Gly Arg Leu His Phe Met Phe Asp Leu Gly Lys Gly Arg Thr		
2770	2775	2780
Lys Val Ser His Pro Ala Leu Leu Ser Asp Gly Lys Trp His Thr Val		
2785	2790	2795
Lys Thr Asp Tyr Val Lys Arg Lys Gly Phe Ile Thr Val Asp Gly Arg		
2805	2810	2815
Glu Ser Pro Met Val Thr Val Val Gly Asp Gly Thr Met Leu Asp Val		
2820	2825	2830
Glu Gly Leu Phe Tyr Leu Gly Gly Leu Pro Ser Gln Tyr Gln Ala Arg		
2835	2840	2845
Lys Ile Gly Asn Ile Thr His Ser Ile Pro Ala Cys Ile Gly Asp Val		
2850	2855	2860
Thr Val Asn Ser Lys Gln Leu Asp Lys Asp Ser Pro Val Ser Ala Phe		
2865	2870	2875
Thr Val Asn Arg Cys Tyr Ala Val Ala Gln Glu Gly Thr Tyr Phe Asp		
2885	2890	2895
Gly Ser Gly Tyr Ala Ala Leu Val Lys Glu Gly Tyr Lys Val Gln Ser		
2900	2905	2910
Asp Val Asn Ile Thr Leu Glu Phe Arg Thr Ser Ser Gln Asn Gly Val		
2915	2920	2925
Leu Leu Gly Ile Ser Thr Ala Lys Val Asp Ala Ile Gly Leu Glu Leu		
2930	2935	2940
Val Asp Gly Lys Val Leu Phe His Val Asn Asn Gly Ala Gly Arg Ile		
2945	2950	2955
Thr Pro Ala Tyr Glu Pro Lys Thr Ala Thr Val Leu Cys Asp Gly Lys		
2965	2970	2975
Trp His Thr Leu Gln Ala Asn Lys Ser Lys His Arg Ile Thr Leu Ile		
2980	2985	2990
Val Asp Gly Asn Ala Val Gly Ala Glu Ser Pro His Thr Gln Ser Thr		
2995	3000	3005
Ser Val Asp Thr Asn Asn Pro Ile Tyr Val Gly Tyr Pro Ala Gly		
3010	3015	3020
Val Lys Gln Lys Cys Leu Arg Ser Gln Thr Ser Phe Arg Gly Cys Leu		
3025	3030	3035
Arg Lys Leu Ala Leu Ile Lys Ser Pro Gln Val Gln Ser Phe Asp Phe		
3045	3050	3055
Ser Arg Ala Phe Glu Leu His Gly Val Phe Leu His Ser Cys Pro Gly		
3060	3065	3070
Thr Glu Ser		
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<309> 1988-08-01

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20 25 30

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35 40 45
Lys Leu Ser Val Thr Ser Thr Cys Gly Leu His Lys Pro Glu Pro Tyr
50 55 60
Cys Ile Val Ser His Leu Gln Glu Asp Lys Lys Cys Phe Ile Cys Asn
65 70 75 80
Ser Gln Asp Pro Tyr His Glu Thr Leu Asn Pro Asp Ser His Leu Ile
85 90 95
Glu Asn Val Val Thr Thr Phe Ala Pro Asn Arg Leu Lys Ile Trp Trp
100 105 110
Gln Ser Glu Asn Gly Val Glu Asn Val Thr Ile Gln Leu Asp Leu Glu
115 120 125
Ala Glu Phe His Phe Thr His Leu Ile Met Thr Phe Lys Thr Phe Arg
130 135 140
Pro Ala Ala Met Leu Ile Glu Arg Ser Ser Asp Phe Gly Lys Thr Trp
145 150 155 160
Gly Val Tyr Arg Tyr Phe Ala Tyr Asp Cys Glu Ala Ser Phe Pro Gly
165 170 175
Ile Ser Thr Gly Pro Met Lys Lys Val Asp Asp Ile Ile Cys Asp Ser
180 185 190
Arg Tyr Ser Asp Ile Glu Pro Ser Thr Glu Gly Glu Val Ile Phe Arg
195 200 205
Ala Leu Asp Pro Ala Phe Lys Ile Glu Asp Pro Tyr Ser Pro Arg Ile
210 215 220
Gln Asn Leu Leu Lys Ile Thr Asn Leu Arg Ile Lys Phe Val Lys Leu
225 230 235 240
His Thr Leu Gly Asp Asn Leu Leu Asp Ser Arg Met Glu Ile Arg Glu
245 250 255
Lys Tyr Tyr Tyr Ala Val Tyr Asp Met Val Val Arg Gly Asn Cys Phe
260 265 270
Cys Tyr Gly His Ala Ser Glu Cys Ala Pro Val Asp Gly Phe Asn Glu
275 280 285
Glu Val Glu Gly Met Val His Gly His Cys Met Cys Arg His Asn Thr
290 295 300
Lys Gly Leu Asn Cys Glu Leu Cys Met Asp Phe Tyr His Asp Leu Pro
305 310 315 320
Trp Arg Pro Ala Glu Gly Arg Asn Ser Asn Ala Cys Lys Lys Cys Asn
325 330 335
Cys Asn Glu His Ser Ile Ser Cys His Phe Asp Met Ala Val Tyr Leu
340 345 350
Ala Thr Gly Asn Val Ser Gly Gly Val Cys Asp Asp Cys Gln His Asn
355 360 365
Thr Met Gly Arg Asn Cys Glu Gln Cys Lys Pro Phe Tyr Tyr Gln His
370 375 380
Pro Glu Arg Asp Ile Arg Asp Pro Asn Phe Cys Glu Arg Cys Thr Cys
385 390 395 400
Asp Pro Ala Gly Ser Gln Asn Glu Gly Ile Cys Asp Ser Tyr Thr Asp
405 410 415
Phe Ser Thr Gly Leu Ile Ala Gly Gln Cys Arg Cys Lys Leu Asn Val
420 425 430
Glu Gly Glu His Cys Asp Val Cys Lys Glu Gly Phe Tyr Asp Leu Ser
435 440 445
Ser Glu Asp Pro Phe Gly Cys Lys Ser Cys Ala Cys Asn Pro Leu Gly
450 455 460
Thr Ile Pro Gly Gly Asn Pro Cys Asp Ser Glu Thr Gly His Cys Tyr
465 470 475 480
Cys Lys Arg Leu Val Thr Gly Gln His Cys Asp Gln Cys Leu Pro Glu
485 490 495
His Trp Gly Leu Ser Asn Asp Leu Asp Gly Cys Arg Pro Cys Asp Cys
500 505 510
Asp Leu Gly Gly Ala Leu Asn Asn Ser Cys Phe Ala Glu Ser Gly Gln

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Cys Ser Cys Arg Pro His Met	Ile Gly Arg Gln Cys	Asn Glu Val Glu
530	535	540
Pro Gly Tyr Tyr Phe Ala Thr	Leu Asp His Tyr	Leu Tyr Glu Ala Glu
545	550	555
Glu Ala Asn Leu Gly Pro	Gly Val Ser Ile	Val Glu Arg Gln Tyr Ile
565	570	575
Gln Asp Arg Ile Pro Ser Trp	Thr Gly Ala Gly	Phe Val Arg Val Pro
580	585	590
Glu Gly Ala Tyr Leu Glu Phe	Phe Ile Asp Asn Ile	Pro Tyr Ser Met
595	600	605
Glu Tyr Asp Ile Leu Ile Arg	Tyr Glu Pro Gln	Leu Pro Asp His Trp
610	615	620
Glu Lys Ala Val Ile Thr	Val Gln Arg Pro	Gly Arg Ile Pro Thr Ser
625	630	635
Ser Arg Cys Gly Asn Thr	Ile Pro Asp Asp	Asn Gln Val Val Ser
645	650	655
Leu Ser Pro Gly Ser Arg	Tyr Val Val	Leu Pro Arg Pro Val Cys Phe
660	665	670
Glu Lys Gly Thr Asn Tyr	Thr Val Arg	Leu Glu Leu Pro Gln Tyr Thr
675	680	685
Ser Ser Asp Ser Asp Val	Glu Ser Pro	Tyr Thr Leu Ile Asp Ser Leu
690	695	700
Val Leu Met Pro Tyr Cys	Lys Ser Leu Asp	Ile Phe Thr Val Gly Gly
705	710	715
Ser Gly Asp Gly Val Val	Thr Asn Ser Ala	Trp Glu Thr Phe Gln Arg
725	730	735
Tyr Arg Cys Leu Glu Asn Ser	Arg Ser Val Val	Lys Thr Pro Met Thr
740	745	750
Asp Val Cys Arg Asn Ile	Ile Phe Ser	Ile Ser Ala Leu Leu His Gln
755	760	765
Thr Gly Leu Ala Cys Glu	Cys Asp Pro	Gln Gly Ser Leu Ser Ser Val
770	775	780
Cys Asp Pro Asn Gly	Gly Gln Cys	Gly Arg Pro Asn Val Val Gly
785	790	795
Arg Thr Cys Asn Arg Cys	Ala Pro Gly	Thr Phe Gly Pro Ser
805	810	815
Gly Cys Lys Pro Cys Glu	Cys His	Leu Gln Gly Ser Val Asn Ala Phe
820	825	830
Cys Asn Pro Val Thr	Gly Gln Cys	His Cys Phe Gln Gly Val Tyr Ala
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Arg Gln Cys Asp Arg Cys	Leu Pro Gly	His Trp Gly Phe Pro Ser Cys
850	855	860
Gln Pro Cys Gln Cys Asn	Gly His Ala Asp	Asp Cys Asp Pro Val Thr
865	870	875
Gly Glu Cys Leu Asn Cys	Gln Asp Tyr	Thr Met Gly His Asn Cys Glu
885	890	895
Arg Cys Leu Ala Gly	Tyr Tyr Gly	Asp Pro Ile Ile Gly Ser Gly Asp
900	905	910
His Cys Arg Pro Cys Pro	Cys Pro Asp	Gly Pro Asp Ser Gly Arg Gln
915	920	925
Phe Ala Arg Ser Cys Tyr	Gln Asp Pro	Val Thr Leu Gln Leu Ala Cys
930	935	940
Val Cys Asp Pro Gly	Tyr Ile Gly	Ser Arg Cys Asp Asp Cys Ala Ser
945	950	955
Gly Tyr Phe Gly Asn Pro	Ser Glu Val	Gly Gly Ser Cys Gln Pro Cys
965	970	975
Gln Cys His Asn Asn Ile	Asp Thr	Asp Pro Glu Ala Cys Asp Lys
980	985	990
Glu Thr Gly Arg Cys Leu	Lys Cys	Leu Tyr His Thr Glu Gly Glu His
995	1000	1005

Cys Gln Phe Cys Arg Phe Gly Tyr Tyr Gly Asp Ala Leu Arg Gln Asp
1010 1015 1020
Cys Arg Lys Cys Val Cys Asn Tyr Leu Gly Thr Val Gln Glu His Cys
1025 1030 1035 1040
Asn Gly Ser Asp Cys Gln Cys Asp Lys Ala Thr Gly Gln Cys Leu Cys
1045 1050 1055
Leu Pro Asn Val Ile Gly Gln Asn Cys Asp Arg Cys Ala Pro Asn Thr
1060 1065 1070
Trp Gln Leu Ala Ser Gly Thr Gly Cys Asp Pro Cys Asn Cys Asn Ala
1075 1080 1085
Ala His Ser Phe Gly Pro Ser Cys Asn Glu Phe Thr Gly Gln Cys Gln
1090 1095 1100
Cys Met Pro Gly Phe Gly Gly Arg Thr Cys Ser Glu Cys Gln Glu Leu
1105 1110 1115 1120
Phe Trp Gly Asp Pro Asp Val Glu Cys Arg Ala Cys Asp Cys Asp Pro
1125 1130 1135
Arg Gly Ile Glu Thr Pro Gln Cys Asp Gln Ser Thr Gly Gln Cys Val
1140 1145 1150
Cys Val Glu Gly Val Glu Gly Pro Arg Cys Asp Lys Cys Thr Arg Gly
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Tyr Ser Gly Val Phe Pro Asp Cys Thr Pro Cys His Gln Cys Phe Ala
1170 1175 1180
Leu Trp Asp Val Ile Ile Ala Glu Leu Thr Asn Arg Thr His Arg Phe
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Leu Glu Lys Ala Lys Ala Leu Lys Ile Ser Gly Val Ile Gly Pro Tyr
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Arg Glu Thr Val Asp Ser Val Glu Arg Lys Val Ser Glu Ile Lys Asp
1220 1225 1230
Ile Leu Ala Gln Ser Pro Ala Ala Glu Pro Leu Lys Asn Ile Gly Asn
1235 1240 1245
Leu Phe Glu Glu Ala Glu Lys Leu Ile Lys Asp Val Thr Glu Met Met
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Ala Gln Val Glu Val Lys Leu Ser Asp Thr Thr Ser Gln Ser Asn Ser
1265 1270 1275 1280
Thr Ala Lys Glu Leu Asp Ser Leu Gln Thr Glu Ala Glu Ser Leu Asp
1285 1290 1295
Asn Thr Val Lys Glu Leu Ala Glu Gln Leu Glu Phe Ile Lys Asn Ser
1300 1305 1310
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Leu Glu Ala Glu Glu Arg Val Asn Ala Ser Thr Thr Glu Pro Asn Ser
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Thr Val Glu Gln Ser Ala Leu Met Arg Asp Arg Val Glu Asp Val Met
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Met Glu Arg Glu Ser Gln Phe Lys Glu Lys Gln Glu Glu Gln Ala Arg
1365 1370 1375
Leu Leu Asp Glu Leu Ala Gly Lys Leu Gln Ser Leu Asp Leu Ser Ala
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Ala Ala Glu Met Thr Cys Gly Thr Pro Pro Gly Ala Ser Cys Ser Glu
1395 1400 1405
Thr Glu Cys Gly Gly Pro Asn Cys Arg Thr Asp Glu Gly Glu Arg Lys
1410 1415 1420
Cys Gly Gly Pro Gly Cys Gly Gly Leu Val Thr Val Ala His Asn Ala
1425 1430 1435 1440
Trp Gln Lys Ala Met Asp Leu Asp Gln Asp Val Leu Ser Ala Leu Ala
1445 1450 1455
Glu Val Glu Gln Leu Ser Lys Met Val Ser Glu Ala Lys Leu Arg Ala
1460 1465 1470
Asp Glu Ala Lys Gln Ser Ala Glu Asp Ile Leu Leu Lys Thr Asn Ala
1475 1480 1485
Thr Lys Glu Lys Met Asp Lys Ser Asn Glu Glu Leu Arg Asn Leu Ile

1490	1495	1500
Lys Gln Ile Arg Asn Phe Leu Thr Gln Asp Ser Ala Asp Leu Asp Ser		
1505	1510	1515
Ile Glu Ala Val Ala Asn Glu Val Leu Lys Met Glu Met Pro Ser Thr		
1525	1530	1535
Pro Gln Gln Leu Gln Asn Leu Thr Glu Asp Ile Arg Glu Arg Val Glu		
1540	1545	1550
Ser Leu Ser Gln Val Glu Val Ile Leu Gln His Ser Ala Ala Asp Ile		
1555	1560	1565
Ala Arg Ala Glu Met Leu Leu Glu Glu Ala Lys Arg Ala Ser Lys Ser		
1570	1575	1580
Ala Thr Asp Val Lys Val Thr Ala Asp Met Val Lys Glu Ala Leu Glu		
1585	1590	1595
Glu Ala Glu Lys Ala Gln Val Ala Ala Glu Lys Ala Ile Lys Gln Ala		
1605	1610	1615
Asp Glu Asp Ile Gln Gly Thr Gln Asn Leu Leu Thr Ser Ile Glu Ser		
1620	1625	1630
Glu Thr Ala Ala Ser Glu Glu Thr Leu Phe Asn Ala Ser Gln Arg Ile		
1635	1640	1645
Ser Glu Leu Glu Arg Asn Val Glu Glu Leu Lys Arg Lys Ala Ala Gln		
1650	1655	1660
Asn Ser Gly Glu Ala Glu Tyr Ile Glu Lys Val Val Tyr Thr Val Lys		
1665	1670	1675
Gln Ser Ala Glu Asp Val Lys Lys Thr Leu Asp Gly Glu Leu Asp Glu		
1685	1690	1695
Lys Tyr Lys Lys Val Glu Asn Leu Ile Ala Lys Lys Thr Glu Glu Ser		
1700	1705	1710
Ala Asp Ala Arg Arg Lys Ala Glu Met Leu Gln Asn Glu Ala Lys Thr		
1715	1720	1725
Leu Leu Ala Gln Ala Asn Ser Lys Leu Gln Leu Leu Lys Asp Leu Glu		
1730	1735	1740
Arg Lys Tyr Glu Asp Asn Gln Arg Tyr Leu Glu Asp Lys Ala Gln Glu		
1745	1750	1755
Leu Ala Arg Leu Glu Gly Glu Val Arg Ser Leu Leu Lys Asp Ile Ser		
1765	1770	1775
Gln Lys Val Ala Val Tyr Ser Thr Cys Leu		
1780	1785	

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 <211> 1786
 <212> PRT
 <213> Mus Musculus

<300>
 <308> Swissprot P02469
 <309> 1989-07-01

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 Thr Arg Val Cys Ala Gln Glu Pro Glu Phe Ser Tyr Gly Cys Ala Glu
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 Gly Ser Cys Tyr Pro Ala Thr Gly Asp Leu Leu Ile Gly Arg Ala Gln
 35 40 45
 Lys Leu Ser Val Thr Ser Thr Cys Gly Leu His Lys Pro Glu Pro Tyr
 50 55 60
 Cys Ile Val Ser His Leu Gln Glu Asp Lys Lys Cys Phe Ile Cys Asp
 65 70 75 80
 Ser Arg Asp Pro Tyr His Glu Thr Leu Asn Pro Asp Ser His Leu Ile
 85 90 95

Glu Asn Val Val Thr Thr Phe Ala Pro Asn Arg Leu Lys Ile Trp Trp
100 105 110
Gln Ser Glu Asn Gly Val Glu Asn Val Thr Ile Gln Leu Asp Leu Glu
115 120 125
Ala Glu Phe His Phe Thr His Leu Ile Met Thr Phe Lys Thr Phe Arg
130 135 140
Pro Ala Ala Met Leu Ile Glu Arg Ser Ser Asp Phe Gly Lys Thr Trp
145 150 155 160
Gly Val Tyr Arg Tyr Phe Ala Tyr Asp Cys Glu Ser Ser Phe Pro Gly
165 170 175
Ile Ser Thr Gly Pro Met Lys Lys Val Asp Asp Ile Ile Cys Asp Ser
180 185 190
Arg Tyr Ser Asp Ile Glu Pro Ser Thr Glu Gly Glu Val Ile Phe Arg
195 200 205
Ala Leu Asp Pro Ala Phe Lys Ile Glu Asp Pro Tyr Ser Pro Arg Ile
210 215 220
Gln Asn Leu Leu Lys Ile Thr Asn Leu Arg Ile Lys Phe Val Lys Leu
225 230 235 240
His Thr Leu Gly Asp Asn Leu Leu Asp Ser Arg Met Glu Ile Arg Glu
245 250 255
Lys Tyr Tyr Tyr Ala Val Tyr Asp Met Val Val Arg Gly Asn Cys Phe
260 265 270
Cys Tyr Gly His Ala Ser Glu Cys Ala Pro Val Asp Gly Val Asn Glu
275 280 285
Glu Val Glu Gly Met Val His Gly His Cys Met Cys Arg His Asn Thr
290 295 300
Lys Gly Leu Asn Cys Glu Leu Cys Met Asp Phe Tyr His Asp Leu Pro
305 310 315 320
Trp Arg Pro Ala Glu Gly Arg Asn Ser Asn Ala Cys Lys Lys Cys Asn
325 330 335
Cys Asn Glu His Ser Ser Ser Cys His Phe Asp Met Ala Val Phe Leu
340 345 350
Ala Thr Gly Asn Val Ser Gly Gly Val Cys Asp Asn Cys Gln His Asn
355 360 365
Thr Met Gly Arg Asn Cys Glu Gln Cys Lys Pro Phe Tyr Phe Gln His
370 375 380
Pro Glu Arg Asp Ile Arg Asp Pro Asn Leu Cys Glu Pro Cys Thr Cys
385 390 395 400
Asp Pro Ala Gly Ser Glu Asn Gly Gly Ile Cys Asp Gly Tyr Thr Asp
405 410 415
Phe Ser Val Gly Leu Ile Ala Gly Gln Cys Arg Cys Lys Leu His Val
420 425 430
Glu Gly Glu Arg Cys Asp Val Cys Lys Glu Gly Phe Tyr Asp Leu Ser
435 440 445
Ala Glu Asp Pro Tyr Gly Cys Lys Ser Cys Ala Cys Asn Pro Leu Gly
450 455 460
Thr Ile Pro Gly Gly Asn Pro Cys Asp Ser Glu Thr Gly Tyr Cys Tyr
465 470 475 480
Cys Lys Arg Leu Val Thr Gly Gln Arg Cys Asp Gln Cys Leu Pro Gln
485 490 495
His Trp Gly Leu Ser Asn Asp Leu Asp Gly Cys Arg Pro Cys Asp Cys
500 505 510
Asp Leu Gly Gly Ala Leu Asn Asn Ser Cys Ser Glu Asp Ser Gly Gln
515 520 525
Cys Ser Cys Leu Pro His Met Ile Gly Arg Gln Cys Asn Glu Val Glu
530 535 540
Ser Gly Tyr Tyr Phe Thr Thr Leu Asp His Tyr Ile Tyr Glu Ala Glu
545 550 555 560
Glu Ala Asn Leu Gly Pro Gly Val Val Val Glu Arg Gln Tyr Ile
565 570 575
Gln Asp Arg Ile Pro Ser Trp Thr Gly Pro Gly Phe Val Arg Val Pro

580	585	590													
Glu	Gly	Ala	Tyr	Leu	Glu	Phe	Phe	Ile	Asp	Asn	Ile	Pro	Tyr	Ser	Met
595					600							605			
Glu	Tyr	Glu	Ile	Leu	Ile	Arg	Tyr	Glu	Pro	Gln	Leu	Pro	Asp	His	Trp
610					615						620				
Glu	Lys	Ala	Val	Ile	Thr	Val	Gln	Arg	Pro	Gly	Lys	Ile	Pro	Ala	Ser
625					630					635			640		
Ser	Arg	Cys	Gly	Asn	Thr	Val	Pro	Asp	Asp	Asp	Asn	Gln	Val	Val	Ser
								645	650			655			
Leu	Ser	Pro	Gly	Ser	Arg	Tyr	Val	Val	Leu	Pro	Arg	Pro	Val	Cys	Phe
								660	665			670			
Glu	Lys	Gly	Met	Asn	Tyr	Thr	Val	Arg	Leu	Glu	Leu	Pro	Gln	Tyr	Thr
								675	680			685			
Ala	Ser	Gly	Ser	Asp	Val	Glu	Ser	Pro	Tyr	Thr	Phe	Ile	Asp	Ser	Leu
								690	695			700			
Val	Leu	Met	Pro	Tyr	Cys	Lys	Ser	Leu	Asp	Ile	Phe	Thr	Val	Gly	Gly
						710				715			720		
Ser	Gly	Asp	Gly	Glu	Val	Thr	Asn	Ser	Ala	Trp	Glu	Thr	Phe	Gln	Arg
						725				730			735		
Tyr	Arg	Cys	Leu	Glu	Asn	Ser	Arg	Ser	Val	Val	Lys	Thr	Pro	Met	Thr
						740				745			750		
Asp	Val	Cys	Arg	Asn	Ile	Ile	Phe	Ser	Ile	Ser	Ala	Leu	Ile	His	Gln
						755				760			765		
Thr	Gly	Leu	Ala	Cys	Glu	Cys	Asp	Pro	Gln	Gly	Ser	Leu	Ser	Ser	Val
						770				775			780		
Cys	Asp	Pro	Asn	Gly	Gly	Gln	Cys	Gln	Cys	Arg	Pro	Asn	Val	Val	Gly
						785				790			795		800
Arg	Thr	Cys	Asn	Arg	Cys	Ala	Pro	Gly	Thr	Phe	Gly	Phe	Gly	Pro	Asn
						805				810			815		
Gly	Cys	Lys	Pro	Cys	Asp	Cys	His	Leu	Gln	Gly	Ser	Ala	Ser	Ala	Phe
						820				825			830		
Cys	Asp	Ala	Ile	Thr	Gly	Gln	Cys	His	Cys	Phe	Gln	Gly	Ile	Tyr	Ala
						835				840			845		
Arg	Gln	Cys	Asp	Arg	Cys	Leu	Pro	Gly	Tyr	Trp	Gly	Phe	Pro	Ser	Cys
						850				855			860		
Gln	Pro	Cys	Gln	Cys	Asn	Gly	His	Ala	Leu	Asp	Cys	Asp	Thr	Val	Thr
						865				870			875		880
Gly	Glu	Cys	Leu	Ser	Cys	Gln	Asp	Tyr	Thr	Gly	His	Asn	Cys	Glu	
						885				890			895		
Arg	Cys	Leu	Ala	Gly	Tyr	Tyr	Gly	Asp	Pro	Ile	Ile	Gly	Ser	Gly	Asp
						900				905			910		
His	Cys	Arg	Pro	Cys	Pro	Asp	Gly	Pro	Asp	Ser	Gly	Arg	Gln		
						915				920			925		
Phe	Ala	Arg	Ser	Cys	Tyr	Gln	Asp	Pro	Val	Thr	Leu	Gln	Leu	Ala	Cys
						930				935			940		
Val	Cys	Asp	Pro	Gly	Tyr	Ile	Gly	Ser	Arg	Cys	Asp	Asp	Cys	Ala	Ser
						945				950			955		960
Gly	Phe	Phe	Gly	Asn	Pro	Ser	Asp	Phe	Gly	Gly	Ser	Cys	Gln	Pro	Cys
						965				970			975		
Gln	Cys	His	His	Asn	Ile	Asp	Thr	Thr	Asp	Pro	Glu	Ala	Cys	Asp	Lys
						980				985			990		
Asp	Thr	Gly	Arg	Cys	Leu	Lys	Cys	Leu	Tyr	His	Thr	Glu	Gly	Asp	His
						995				1000			1005		
Cys	Gln	Leu	Cys	Gln	Tyr	Gly	Tyr	Tyr	Gly	Asp	Ala	Leu	Arg	Gln	Asp
						1010				1015			1020		
Cys	Arg	Lys	Cys	Val	Cys	Asn	Tyr	Leu	Gly	Thr	Val	Lys	Glu	His	Cys
						1025				1030			1035		1040
Asn	Gly	Ser	Asp	Cys	His	Cys	Asp	Lys	Ala	Thr	Gly	Gln	Cys	Ser	Cys
						1045				1050			1055		
Leu	Pro	Asn	Val	Ile	Gly	Gln	Asn	Cys	Asp	Arg	Cys	Ala	Pro	Asn	Thr
						1060				1065			1070		

Trp Gln Leu Ala Ser Gly Thr Gly Cys Gly Pro Cys Asn Cys Asn Ala
1075 1080 1085
Ala His Ser Phe Gly Pro Ser Cys Asn Glu Phe Thr Gly Gln Cys Gln
1090 1095 1100
Cys Met Pro Gly Phe Gly Gly Arg Thr Cys Ser Glu Cys Gln Glu Leu
1105 1110 1115 1120
Phe Trp Gly Asp Pro Asp Val Glu Cys Arg Ala Cys Asp Cys Asp Pro
1125 1130 1135
Arg Gly Ile Glu Thr Pro Gln Cys Asp Gln Ser Thr Gly Gln Cys Val
1140 1145 1150
Cys Val Glu Gly Val Glu Gly Pro Arg Cys Asp Lys Cys Thr Arg Gly
1155 1160 1165
Tyr Ser Gly Val Phe Pro Asp Cys Thr Pro Cys His Gln Cys Phe Ala
1170 1175 1180
Leu Trp Asp Ala Ile Ile Gly Glu Leu Thr Asn Arg Thr His Lys Phe
1185 1190 1195 1200
Leu Glu Lys Ala Lys Ala Leu Lys Ile Ser Gly Val Ile Gly Pro Tyr
1205 1210 1215
Arg Glu Thr Val Asp Ser Val Glu Lys Lys Val Asn Glu Ile Lys Asp
1220 1225 1230
Ile Leu Ala Gln Ser Pro Ala Ala Glu Pro Leu Lys Asn Ile Gly Ile
1235 1240 1245
Leu Phe Glu Glu Ala Glu Lys Leu Thr Lys Asp Val Thr Glu Lys Met
1250 1255 1260
Ala Gln Val Glu Val Lys Leu Thr Asp Thr Ala Ser Gln Ser Asn Ser
1265 1270 1275 1280
Thr Ala Gly Glu Leu Gly Ala Leu Gln Ala Glu Ala Glu Ser Leu Asp
1285 1290 1295
Lys Thr Val Lys Glu Leu Ala Glu Gln Leu Glu Phe Ile Lys Asn Ser
1300 1305 1310
Asp Ile Gln Gly Ala Leu Asp Ser Ile Thr Lys Tyr Phe Gln Met Ser
1315 1320 1325
Leu Glu Ala Glu Lys Arg Val Asn Ala Ser Thr Thr Asp Pro Asn Ser
1330 1335 1340
Thr Val Glu Gln Ser Ala Leu Thr Arg Asp Arg Val Glu Asp Leu Met
1345 1350 1355 1360
Leu Glu Arg Glu Ser Pro Phe Lys Glu Gln Gln Glu Glu Gln Ala Arg
1365 1370 1375
Leu Leu Asp Glu Leu Ala Gly Lys Leu Gln Ser Leu Asp Leu Ser Ala
1380 1385 1390
Ala Ala Gln Met Thr Cys Gly Thr Pro Pro Gly Ala Asp Cys Ser Glu
1395 1400 1405
Ser Glu Cys Gly Pro Asn Cys Arg Thr Asp Glu Gly Glu Lys Lys
1410 1415 1420
Cys Gly Gly Pro Gly Cys Gly Leu Val Thr Val Ala His Ser Ala
1425 1430 1435 1440
Trp Gln Lys Ala Met Asp Phe Asp Arg Asp Val Leu Ser Ala Leu Ala
1445 1450 1455
Glu Val Glu Gln Leu Ser Lys Met Val Ser Glu Ala Lys Val Arg Ala
1460 1465 1470
Asp Glu Ala Lys Gln Asn Ala Gln Asp Val Leu Leu Lys Thr Asn Ala
1475 1480 1485
Thr Lys Glu Lys Val Asp Lys Ser Asn Glu Asp Leu Arg Asn Leu Ile
1490 1495 1500
Lys Gln Ile Arg Asn Phe Leu Thr Glu Asp Ser Ala Asp Leu Asp Ser
1505 1510 1515 1520
Ile Glu Ala Val Ala Asn Glu Val Leu Lys Ser Gly Asn Ala Ser Thr
1525 1530 1535
Pro Gln Gln Leu Gln Asn Leu Thr Glu Asp Ile Arg Glu Arg Val Glu
1540 1545 1550
Thr Leu Ser Gln Val Glu Val Ile Leu Gln Gln Ser Ala Ala Asp Ile

1555	1560	1565	
Ala Arg Ala Glu Leu Leu Leu	Glu Glu Ala Lys Arg Ala Ser Lys Ser		
1570	1575	1580	
Ala Thr Asp Val Lys Val Thr Ala Asp Met Val	Lys Glu Ala Leu Glu		
1585	1590	1595	1600
Glu Ala Glu Lys Ala Gln Val Ala Ala	Glu Lys Ala Ile Lys Gln Ala		
1605	1610	1615	
Asp Glu Asp Ile Gln Gly Thr Gln Asn Leu Leu	Thr Ser Ile Glu Ser		
1620	1625	1630	
Glu Thr Ala Ala Ser Glu Glu Thr Leu Thr Asn Ala	Ser Gln Arg Ile		
1635	1640	1645	
Ser Lys Leu Glu Arg Asn Val Glu Glu Leu Lys	Arg Lys Ala Ala Gln		
1650	1655	1660	
Asn Ser Gly Glu Ala Glu Tyr Ile Glu Lys Val	Val Val Tyr Ser Val Lys		
1665	1670	1675	1680
Gln Asn Ala Asp Asp Val Lys Lys Thr Leu Asp	Gly Glu Leu Asp Glu		
1685	1690	1695	
Lys Tyr Lys Lys Val Glu Ser Leu Ile Ala Gln	Lys Thr Glu Glu Ser		
1700	1705	1710	
Ala Asp Ala Arg Arg Lys Ala Glu Leu Leu Gln	Asn Glu Ala Lys Thr		
1715	1720	1725	
Leu Leu Ala Gln Ala Asn Ser Lys Leu Gln Leu	Leu Glu Asp Leu Glu		
1730	1735	1740	
Arg Lys Tyr Glu Asp Asn Gln Lys Tyr Leu Glu	Asp Lys Ala Gln Glu		
1745	1750	1755	1760
Leu Val Arg Leu Glu Gly Glu Val Arg Ser	Leu Leu Lys Asp Ile Ser		
1765	1770	1775	
Glu Lys Val Ala Val Tyr Ser Thr Cys Leu			
1780	1785		

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 <212> PRT
 <213> Rattus Norvegicus

<300>
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 <309> 1990-04-01

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Thr Leu Ala Gln Val Pro Ser Leu Asp Val Pro Gly Cys Ser Arg Gly			
35	40	45	
Ser Cys Tyr Pro Ala Thr Gly Asp Leu Leu Val Gly Arg Ala Asp Arg			
50	55	60	
Leu Thr Ala Ser Ser Thr Cys Gly Leu His Ser Pro Gln Pro Tyr Cys			
65	70	75	80
Ile Val Ser His Leu Gln Asp Glu Lys Lys Cys Phe Leu Cys Asp Ser			
85	90	95	
Arg Arg Pro Phe Ser Ala Arg Asp Asn Pro Asn Ser His Arg Ile Gln			
100	105	110	
Asn Val Val Thr Ser Phe Ala Pro Gln Arg Arg Thr Ala Trp Trp Gln			
115	120	125	
Ser Glu Asn Gly Val Pro Met Val Thr Ile Gln Leu Asp Leu Glu Ala			
130	135	140	
Glu Phe His Phe Thr His Leu Ile Met Thr Phe Lys Thr Phe Arg Pro			
145	150	155	160

Ala Ala Met Leu Val Glu Arg Ser Ala Asp Phe Gly Arg Thr Trp Arg
165 170 175
Val Tyr Arg Tyr Phe Ser Tyr Asp Cys Gly Ala Asp Phe Pro Gly Ile
180 185 190
Pro Leu Ala Pro Pro Arg Arg Trp Asp Asp Val Val Cys Glu Ser Arg
195 200 205
Tyr Ser Glu Ile Glu Pro Ser Thr Glu Gly Glu Val Ile Tyr Arg Val
210 215 220
Leu Asp Pro Ala Ile Pro Ile Pro Asp Pro Tyr Ser Ser Arg Ile Gln
225 230 235 240
Asn Leu Leu Lys Ile Thr Asn Leu Arg Val Asn Leu Thr Arg Leu His
245 250 255
Thr Leu Gly Asp Asn Leu Leu Asp Pro Arg Arg Glu Ile Arg Glu Lys
260 265 270
Tyr Tyr Ala Leu Tyr Glu Leu Val Ile Arg Gly Asn Cys Phe Cys
275 280 285
Tyr Gly His Ala Ser Gln Cys Ala Pro Ala Pro Gly Ala Pro Ala His
290 295 300
Ala Glu Gly Met Val His Gly Ala Cys Ile Cys Lys His Asn Thr Arg
305 310 315 320
Gly Leu Asn Cys Glu Gln Cys Gln Asp Phe Tyr Gln Asp Leu Pro Trp
325 330 335
His Pro Ala Glu Asp Gly His Thr His Ala Cys Arg Lys Cys Glu Cys
340 345 350
Asn Gly His Ser His Ser Cys His Phe Asp Met Ala Val Tyr Leu Ala
355 360 365
Ser Gly Asn Val Ser Gly Gly Val Cys Asp Gly Cys Gln His Asn Thr
370 375 380
Ala Gly Arg His Cys Glu Leu Cys Arg Pro Phe Phe Tyr Arg Asp Pro
385 390 395 400
Thr Lys Asp Met Arg Asp Pro Ala Ala Cys Arg Pro Cys Asp Cys Asp
405 410 415
Pro Met Gly Ser Gln Asp Gly Gly Arg Cys Asp Ser His Asp Asp Pro
420 425 430
Val Leu Gly Leu Val Ser Gly Gln Cys Arg Cys Lys Glu His Val Val
435 440 445
Gly Thr Arg Cys Gln Gln Cys Arg Asp Gly Phe Phe Gly Leu Ser Ala
450 455 460
Ser Asn Pro Arg Gly Cys Gln Arg Cys Gln Cys Asn Ser Arg Gly Thr
465 470 475 480
Val Pro Gly Gly Thr Pro Cys Asp Ser Ser Gly Thr Cys Phe Cys
485 490 495
Lys Arg Leu Val Thr Gly Asp Gly Cys Asp Arg Cys Leu Pro Gly His
500 505 510
Trp Gly Leu Ser His Asp Leu Leu Gly Cys Arg Pro Cys Asp Cys Asp
515 520 525
Val Gly Gly Ala Leu Asp Pro Gln Cys Asp Glu Ala Thr Gly Gln Cys
530 535 540
Pro Cys Arg Pro His Met Ile Gly Arg Arg Cys Glu Gln Val Gln Pro
545 550 555 560
Gly Tyr Phe Arg Pro Phe Leu Asp His Leu Thr Trp Glu Ala Glu Gly
565 570 575
Ala His Gly Gln Val Leu Glu Val Val Glu Arg Leu Val Thr Asn Arg
580 585 590
Glu Thr Pro Ser Trp Thr Gly Val Gly Phe Val Arg Leu Arg Glu Gly
595 600 605
Gln Glu Val Glu Phe Leu Val Thr Ser Leu Pro Arg Ala Met Asp Tyr
610 615 620
Asp Leu Leu Leu Arg Trp Glu Pro Gln Val Pro Glu Gln Trp Ala Glu
625 630 635 640
Leu Glu Leu Val Val Gln Arg Pro Gly Pro Val Ser Ala His Ser Pro

645	650	655													
Cys	Gly	His	Val	Leu	Pro	Arg	Asp	Asp	Arg	Ile	Gln	Gly	Met	Leu	His
660	665	670													
Pro	Asn	Thr	Arg	Val	Leu	Val	Phe	Pro	Arg	Pro	Val	Cys	Leu	Glu	Pro
675	680	685													
Gly	Leu	Ser	Tyr	Lys	Leu	Lys	Leu	Lys	Leu	Thr	Gly	Thr	Gly	Gly	Arg
690	695	700													
Ala	His	Pro	Glu	Thr	Pro	Tyr	Ser	Gly	Ile	Leu	Ile	Asp	Ser		
705	710	715	720												
Leu	Val	Leu	Gln	Pro	His	Val	Leu	Met	Leu	Glu	Met	Phe	Ser	Gly	Gly
725	730	735													
Asp	Ala	Ala	Ala	Leu	Glu	Arg	Arg	Thr	Thr	Phe	Glu	Arg	Tyr	Arg	Cys
740	745	750													
His	Glu	Glu	Gly	Leu	Met	Pro	Ser	Lys	Thr	Pro	Leu	Ser	Glu	Ala	Cys
755	760	765													
Val	Pro	Leu	Leu	Ile	Ser	Ala	Ser	Ser	Leu	Val	Tyr	Asn	Gly	Ala	Leu
770	775	780													
Pro	Cys	Gln	Cys	Asp	Pro	Gln	Gly	Ser	Leu	Ser	Ser	Glu	Cys	Asn	Pro
785	790	795	800												
His	Gly	Gly	Gln	Cys	Arg	Cys	Lys	Pro	Gly	Val	Val	Gly	Arg	Arg	Cys
805	810	815													
Asp	Ala	Cys	Ala	Thr	Gly	Tyr	Tyr	Gly	Phe	Gly	Pro	Ala	Gly	Cys	Gln
820	825	830													
Ala	Cys	Gln	Cys	Ser	Pro	Asp	Gly	Ala	Leu	Ser	Ala	Leu	Cys	Glu	Gly
835	840	845													
Thr	Ser	Gly	Gln	Cys	Leu	Cys	Arg	Thr	Gly	Ala	Phe	Gly	Leu	Arg	Cys
850	855	860													
Asp	His	Cys	Gln	Arg	Gly	Gln	Trp	Gly	Phe	Pro	Asn	Cys	Arg	Pro	Cys
865	870	875	880												
Val	Cys	Asn	Gly	Arg	Ala	Asp	Glu	Cys	Asp	Ala	His	Thr	Gly	Ala	Cys
885	890	895													
Leu	Gly	Cys	Arg	Asp	Tyr	Thr	Gly	Gly	Glu	His	Cys	Glu	Arg	Cys	Ile
900	905	910													
Ala	Gly	Phe	His	Gly	Asp	Pro	Arg	Leu	Pro	Tyr	Gly	Gly	Gln	Cys	Arg
915	920	925													
Pro	Cys	Pro	Cys	Pro	Glu	Gly	Pro	Gly	Ser	Gln	Arg	His	Phe	Ala	Thr
930	935	940													
Ser	Cys	His	Arg	Asp	Gly	Tyr	Ser	Gln	Gln	Ile	Val	Cys	His	Cys	Arg
945	950	955	960												
Ala	Gly	Tyr	Thr	Gly	Leu	Arg	Cys	Glu	Ala	Cys	Ala	Pro	Gly	His	Phe
965	970	975													
Gly	Asp	Pro	Ser	Lys	Pro	Gly	Gly	Arg	Cys	Gln	Leu	Cys	Glu	Cys	Ser
980	985	990													
Gly	Asn	Ile	Asp	Pro	Thr	Asp	Pro	Gly	Ala	Cys	Asp	Pro	His	Thr	Gly
995	1000	1005													
Gln	Cys	Leu	Arg	Cys	Leu	His	His	Thr	Glu	Gly	Pro	His	Cys	Gly	His
1010	1015	1020													
Cys	Lys	Pro	Gly	Phe	His	Gly	Gln	Ala	Ala	Arg	Gln	Ser	Cys	His	Arg
1025	1030	1035	1040												
Cys	Thr	Cys	Asn	Leu	Leu	Gly	Thr	Asp	Pro	Gln	Arg	Cys	Pro	Ser	Thr
1045	1050	1055													
Asp	Leu	Cys	His	Cys	Asp	Pro	Ser	Thr	Gly	Gln	Cys	Pro	Cys	Leu	Pro
1060	1065	1070													
His	Val	Gln	Gly	Leu	Ser	Cys	Asp	Arg	Cys	Ala	Pro	Asn	Phe	Trp	Asn
1075	1080	1085													
Phe	Thr	Ser	Gly	Arg	Gly	Cys	Gln	Pro	Cys	Ala	Cys	His	Pro	Ser	Arg
1090	1095	1100													
Ala	Arg	Gly	Pro	Thr	Cys	Asn	Glu	Phe	Thr	Gly	Gln	Cys	His	Cys	His
1105	1110	1115	1120												
Ala	Gly	Phe	Gly	Arg	Thr	Cys	Ser	Glu	Cys	Gln	Glu	Leu	His	Trp	
1125	1130	1135													

Gly Asp Pro Gly Leu Gln Cys Arg Ala Cys Asp Cys Asp Pro Arg Gly
1140 1145 1150
Ile Asp Lys Pro Gln Cys His Arg Ser Thr Gly His Cys Ser Cys Arg
1155 1160 1165
Pro Gly Val Ser Gly Val Arg Cys Asp Gln Cys Ala Arg Gly Phe Ser
1170 1175 1180
Gly Val Phe Pro Ala Cys His Pro Cys His Ala Cys Phe Gly Asp Trp
1185 1190 1195 1200
Asp Arg Val Val Gln Asp Leu Ala Ala Arg Thr Arg Arg Leu Glu Gln
1205 1210 1215
Trp Ala Gln Glu Leu Gln Gln Thr Gly Val Leu Gly Ala Phe Glu Ser
1220 1225 1230
Ser Phe Leu Asn Leu Gln Gly Lys Leu Gly Met Val Gln Ala Ile Val
1235 1240 1245
Ala Ala Arg Asn Thr Ser Ala Ala Ser Thr Ala Lys Leu Val Glu Ala
1250 1255 1260
Thr Glu Gly Leu Arg His Glu Ile Gly Lys Thr Thr Glu Arg Leu Thr
1265 1270 1275 1280
Gln Leu Glu Ala Glu Leu Thr Asp Val Gln Asp Glu Asn Phe Asn Ala
1285 1290 1295
Asn His Ala Leu Ser Gly Leu Glu Arg Asp Gly Leu Ala Leu Asn Leu
1300 1305 1310
Thr Leu Arg Gln Leu Asp Gln His Leu Asp Ile Leu Lys His Ser Asn
1315 1320 1325
Phe Leu Gly Ala Tyr Asp Ser Ile Arg His Ala His Ser Gln Ser Thr
1330 1335 1340
Glu Ala Glu Arg Arg Ala Asn Ala Ser Thr Phe Ala Ile Pro Ser Pro
1345 1350 1355 1360
Val Ser Asn Ser Ala Asp Thr Arg Arg Arg Ala Glu Val Leu Met Gly
1365 1370 1375
Ala Gln Arg Glu Asn Phe Asn Arg Gln His Leu Ala Asn Gln Gln Ala
1380 1385 1390
Leu Gly Arg Leu Ser Thr His Thr His Leu Ser Leu Thr Gly Val
1395 1400 1405
Asn Glu Leu Val Cys Gly Ala Pro Gly Asp Ala Pro Cys Ala Thr Ser
1410 1415 1420
Pro Cys Gly Gly Ala Gly Cys Arg Asp Glu Asp Gly Gln Pro Arg Cys
1425 1430 1435 1440
Gly Gly Leu Gly Cys Ser Gly Ala Ala Ala Thr Ala Asp Leu Ala Leu
1445 1450 1455
Gly Arg Ala Arg His Thr Gln Ala Glu Leu Gln Arg Ala Leu Val Glu
1460 1465 1470
Gly Gly Ile Leu Ser Arg Val Ser Glu Thr Arg Arg Gln Ala Glu
1475 1480 1485
Glu Ala Gln Gln Arg Ala Gln Ala Ala Leu Asp Lys Ala Asn Ala Ser
1490 1495 1500
Arg Gly Gln Val Glu Gln Ala Asn Gln Glu Leu Arg Glu Leu Ile Gln
1505 1510 1515 1520
Asn Val Lys Asp Phe Leu Ser Gln Glu Gly Ala Asp Pro Asp Ser Ile
1525 1530 1535
Glu Met Val Ala Thr Arg Val Leu Asp Ile Ser Ile Pro Ala Ser Pro
1540 1545 1550
Glu Gln Ile Gln Arg Leu Ala Ser Glu Ile Ala Glu Arg Val Arg Ser
1555 1560 1565
Leu Ala Asp Val Asp Thr Ile Leu Ala His Thr Met Gly Asp Val Arg
1570 1575 1580
Arg Ala Glu Gln Leu Leu Gln Asp Ala Gln Arg Ala Arg Ser Arg Ala
1585 1590 1595 1600
Glu Gly Glu Arg Gln Lys Ala Glu Thr Val Gln Ala Ala Leu Glu Glu
1605 1610 1615
Ala Gln Arg Ala Gln Gly Ala Ala Gln Gly Ala Ile Arg Gly Ala Val

1620	1625	1630
Val Asp Thr Lys Asn Thr Glu Gln Thr Leu Gln Gln Val Gln Glu Arg		
1635	1640	1645
Met Ala Gly Thr Glu Gln Ser Leu Asn Ser Ala Ser Glu Arg Ala Arg		
1650	1655	1660
Gln Leu His Ala Leu Leu Glu Ala Leu Lys Leu Lys Arg Ala Gly Asn		
1665	1670	1675
Ser Leu Ala Ala Ser Thr Ala Glu Glu Thr Ala Gly Ser Ala Gln Ser		
1685	1690	1695
Arg Ala Arg Glu Ala Glu Lys Gln Leu Arg Glu Gln Val Gly Asp Gln		
1700	1705	1710
Tyr Gln Thr Val Arg Ala Leu Ala Glu Arg Lys Ala Glu Gly Val Leu		
1715	1720	1725
Ala Ala Gln Ala Arg Ala Glu Gln Leu Arg Asp Glu Ala Arg Gly Leu		
1730	1735	1740
Leu Gln Ala Ala Gln Asp Lys Leu Gln Arg Leu Gln Glu Leu Glu Gly		
1745	1750	1755
Thr Tyr Glu Glu Asn Glu Arg Glu Leu Glu Val Lys Ala Ala Gln Leu		
1765	1770	1775
Asp Gly Leu Glu Ala Arg Met Arg Ser Val Leu Gln Ala Ile Asn Leu		
1780	1785	1790
Gln Val Gln Ile Tyr Asn Thr Cys Gln		
1795	1800	

<210> 9
 <211> 1798
 <212> PRT
 <213> Homo Sapiens

<300>
 <308> Swissprot P55268
 <309> 1996-10-01

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Glu Leu Arg Leu Gly Leu Leu Leu Ser Val Leu Ala Ala Thr Leu Ala		
20	25	30
Gln Ala Pro Ala Pro Asp Val Pro Gly Cys Ser Arg Gly Ser Cys Tyr		
35	40	45
Pro Ala Thr Gly Asp Leu Leu Val Gly Arg Ala Asp Arg Leu Thr Ala		
50	55	60
Ser Ser Thr Cys Gly Leu Asn Gly Pro Gln Pro Tyr Cys Ile Val Ser		
65	70	75
His Leu Gln Asp Glu Lys Lys Cys Phe Leu Cys Asp Ser Arg Arg Pro		
85	90	95
Phe Ser Ala Arg Asp Asn Pro His Ser His Arg Ile Gln Asn Val Val		
100	105	110
Thr Ser Phe Ala Pro Gln Arg Arg Ala Ala Trp Trp Gln Ser Glu Asn		
115	120	125
Gly Ile Pro Ala Val Thr Ile Gln Leu Asp Leu Glu Ala Glu Phe His		
130	135	140
Phe Thr His Leu Ile Met Thr Phe Lys Thr Phe Arg Pro Ala Ala Met		
145	150	155
Leu Val Glu Arg Ser Ala Asp Phe Gly Arg Thr Trp His Val Tyr Arg		
165	170	175
Tyr Phe Ser Tyr Asp Cys Gly Ala Asp Phe Pro Gly Val Pro Leu Ala		
180	185	190
Pro Pro Arg His Trp Asp Asp Val Val Cys Glu Ser Arg Tyr Ser Glu		
195	200	205

Ile Glu Pro Ser Thr Glu Gly Glu Val Ile Tyr Arg Val Leu Asp Pro
210 215 220
Ala Ile Pro Ile Pro Asp Pro Tyr Ser Ser Arg Ile Gln Asn Leu Leu
225 230 235 240
Lys Ile Thr Asn Leu Arg Val Asn Leu Thr Arg Leu His Thr Leu Gly
245 250 255
Asp Asn Leu Leu Asp Pro Arg Arg Glu Ile Arg Glu Lys Tyr Tyr Tyr
260 265 270
Ala Leu Tyr Glu Leu Val Val Arg Gly Asn Cys Phe Cys Tyr Gly His
275 280 285
Ala Ser Glu Cys Ala Pro Ala Pro Gly Ala Pro Ala His Ala Glu Gly
290 295 300
Met Val His Gly Ala Cys Ile Cys Lys His Asn Thr Arg Gly Leu Asn
305 310 315 320
Cys Glu Gln Cys Gln Asp Phe Tyr Arg Asp Leu Pro Trp Arg Pro Ala
325 330 335
Glu Asp Gly His Ser His Ala Cys Arg Lys Cys Glu Cys His Gly His
340 345 350
Thr His Ser Cys His Phe Asp Met Ala Val Tyr Leu Ala Ser Gly Asn
355 360 365
Val Ser Gly Gly Val Cys Asp Gly Cys Gln His Asn Thr Ala Gly Arg
370 375 380
His Cys Glu Leu Cys Arg Pro Phe Phe Tyr Arg Asp Pro Thr Lys Asp
385 390 395 400
Leu Arg Asp Pro Ala Val Cys Arg Ser Cys Asp Cys Asp Pro Met Gly
405 410 415
Ser Gln Asp Gly Gly Arg Cys Asp Ser His Asp Asp Pro Ala Leu Gly
420 425 430
Leu Val Ser Gly Gln Cys Arg Cys Lys Glu His Val Val Gly Thr Arg
435 440 445
Cys Gln Gln Cys Arg Asp Gly Phe Phe Gly Leu Ser Ile Ser Asp Arg
450 455 460
Leu Gly Cys Arg Arg Cys Gln Cys Asn Ala Arg Gly Thr Val Pro Gly
465 470 475 480
Ser Thr Pro Cys Asp Pro Asn Ser Gly Ser Cys Tyr Cys Lys Arg Leu
485 490 495
Val Thr Gly Arg Gly Cys Asp Arg Cys Leu Pro Gly His Trp Gly Leu
500 505 510
Ser His Asp Leu Leu Gly Cys Arg Pro Cys Asp Cys Asp Val Gly Gly
515 520 525
Ala Leu Asp Pro Gln Cys Asp Glu Gly Thr Gly Gln Cys His Cys Arg
530 535 540
Gln His Met Val Gly Arg Arg Cys Glu Gln Val Gln Pro Gly Tyr Phe
545 550 555 560
Arg Pro Phe Leu Asp His Leu Ile Trp Glu Ala Glu Asp Thr Arg Gly
565 570 575
Gln Val Leu Asp Val Val Glu Arg Leu Val Thr Pro Gly Glu Thr Pro
580 585 590
Ser Trp Thr Gly Ser Gly Phe Val Arg Leu Gln Glu Gly Gln Thr Leu
595 600 605
Glu Phe Leu Val Ala Ser Val Pro Lys Ala Met Asp Tyr Asp Leu Leu
610 615 620
Leu Arg Leu Glu Pro Gln Val Pro Glu Gln Trp Ala Glu Leu Glu Leu
625 630 635 640
Ile Val Gln Arg Pro Gly Pro Val Pro Ala His Ser Leu Cys Gly His
645 650 655
Leu Val Pro Lys Asp Asp Arg Ile Gln Gly Thr Leu Gln Pro His Ala
660 665 670
Arg Tyr Leu Ile Phe Pro Asn Pro Val Cys Leu Glu Pro Gly Ile Ser
675 680 685
Tyr Lys Leu His Leu Lys Leu Val Arg Thr Gly Ser Ala Gln Pro

690	695	700													
Glu	Thr	Pro	Tyr	Ser	Gly	Pro	Gly	Leu	Leu	Ile	Asp	Ser	Leu	Val	Leu
705						710					715				720
Leu	Pro	Arg	Val	Leu	Val	Leu	Glu	Met	Phe	Ser	Gly	Gly	Asp	Ala	Ala
						725				730				735	
Ala	Leu	Glu	Arg	Gln	Ala	Thr	Phe	Glu	Arg	Tyr	Gln	Cys	His	Glu	Glu
						740			745				750		
Gly	Leu	Val	Pro	Ser	Lys	Thr	Ser	Pro	Ser	Glu	Ala	Cys	Ala	Pro	Leu
						755			760				765		
Leu	Ile	Ser	Leu	Ser	Thr	Leu	Ile	Tyr	Asn	Gly	Ala	Leu	Pro	Cys	Gln
						770			775				780		
Cys	Asn	Pro	Gln	Gly	Ser	Leu	Ser	Ser	Glu	Cys	Asn	Pro	His	Gly	Gly
785						790				795				800	
Gln	Cys	Leu	Cys	Lys	Pro	Gly	Val	Val	Gly	Arg	Arg	Cys	Asp	Leu	Cys
						805			810				815		
Ala	Pro	Gly	Tyr	Tyr	Gly	Phe	Gly	Pro	Thr	Gly	Cys	Gln	Ala	Cys	Gln
						820			825				830		
Cys	Ser	His	Glu	Gly	Ala	Leu	Ser	Ser	Leu	Cys	Glu	Lys	Thr	Ser	Gly
						835			840				845		
Gln	Cys	Leu	Cys	Arg	Thr	Gly	Ala	Phe	Gly	Leu	Arg	Cys	Asp	Arg	Cys
						850			855				860		
Gln	Arg	Gly	Gln	Trp	Gly	Phe	Pro	Ser	Cys	Arg	Pro	Cys	Val	Cys	Asn
865						870				875				880	
Gly	His	Ala	Asp	Glu	Cys	Asn	Thr	His	Thr	Gly	Ala	Cys	Leu	Gly	Cys
						885				890				895	
Arg	Asp	His	Thr	Gly	Gly	Glu	His	Cys	Glu	Arg	Cys	Ile	Ala	Gly	Phe
						900			905				910		
His	Arg	Asp	Pro	Arg	Leu	Pro	Tyr	Gly	Gly	Gln	Cys	Arg	Pro	Cys	Pro
						915			920				925		
Cys	Pro	Glu	Gly	Pro	Gly	Ser	Gln	Arg	His	Phe	Ala	Thr	Ser	Cys	His
						930			935				940		
Gln	Asp	Glu	Tyr	Ser	Gln	Ile	Val	Cys	His	Cys	Arg	Ala	Gly	Tyr	
945						950				955				960	
Thr	Gly	Leu	Arg	Cys	Glu	Ala	Cys	Ala	Pro	Gly	His	Phe	Gly	Asp	Pro
						965			970				975		
Ser	Arg	Pro	Gly	Gly	Arg	Cys	Gln	Leu	Cys	Glu	Cys	Ser	Gly	Asn	Ile
						980			985				990		
Asp	Pro	Met	Asp	Pro	Asp	Ala	Cys	Asp	Pro	His	Thr	Gly	Gln	Cys	Leu
						995			1000				1005		
Arg	Cys	Leu	His	His	Thr	Glu	Gly	Pro	His	Cys	Ala	Cys	Lys	Pro	
						1010			1015				1020		
Gly	Phe	His	Gly	Gln	Ala	Ala	Arg	Gln	Ser	Cys	His	Arg	Cys	Thr	Cys
1025						1030				1035				1040	
Asn	Leu	Leu	Gly	Thr	Asn	Pro	Gln	Gln	Cys	Pro	Ser	Pro	Asp	Gln	Cys
						1045			1050				1055		
His	Cys	Asp	Pro	Ser	Ser	Gly	Gln	Cys	Pro	Cys	Leu	Pro	Asn	Val	Gln
						1060			1065				1070		
Gly	Pro	Ser	Cys	Asp	Arg	Cys	Ala	Pro	Asn	Phe	Trp	Asn	Leu	Thr	Ser
						1075			1080				1085		
Gly	His	Gly	Cys	Gln	Pro	Cys	Ala	Cys	His	Pro	Ser	Arg	Ala	Arg	Gly
						1090			1095				1100		
Pro	Thr	Cys	Asn	Glu	Phe	Thr	Gly	Gln	Cys	His	Cys	Arg	Ala	Gly	Phe
1105						1110				1115				1120	
Gly	Gly	Arg	Thr	Cys	Ser	Glu	Cys	Gln	Glu	Leu	His	Trp	Gly	Asp	Pro
						1125			1130				1135		
Gly	Leu	Gln	Cys	His	Ala	Cys	Asp	Cys	Asp	Ser	Arg	Gly	Ile	Asp	Thr
						1140			1145				1150		
Pro	Gln	Cys	His	Arg	Phe	Thr	Gly	His	Cys	Ser	Cys	Arg	Pro	Gly	Val
						1155			1160				1165		
Ser	Gly	Val	Arg	Cys	Asp	Gln	Cys	Ala	Arg	Gly	Phe	Ser	Gly	Ile	Phe
						1170			1175				1180		

Pro Ala Cys His Pro Cys His Ala Cys Phe Gly Asp Trp Asp Arg Val
1185 1190 1195 1200
Val Gln Asp Leu Ala Ala Arg Thr Gln Arg Leu Glu Gln Arg Ala Gln
1205 1210 1215
Glu Leu Gln Gln Thr Gly Val Leu Gly Ala Phe Glu Ser Ser Phe Trp
1220 1225 1230
His Met Gln Glu Lys Leu Gly Ile Val Gln Gly Ile Val Gly Ala Arg
1235 1240 1245
Asn Thr Ser Ala Ala Ser Thr Ala Gln Leu Val Glu Ala Thr Glu Glu
1250 1255 1260
Leu Arg Arg Glu Ile Gly Glu Ala Thr Glu His Leu Thr Gln Leu Glu
1265 1270 1275 1280
Ala Asp Leu Thr Asp Val Gln Asp Glu Asn Phe Asn Ala Asn His Ala
1285 1290 1295
Leu Ser Gly Leu Glu Arg Asp Arg Leu Ala Leu Asn Leu Thr Leu Arg
1300 1305 1310
Gln Leu Asp Gln His Leu Asp Leu Leu Lys His Ser Asn Phe Leu Gly
1315 1320 1325
Ala Tyr Asp Ser Ile Arg His Ala His Ser Gln Ser Ala Glu Ala Glu
1330 1335 1340
Arg Arg Ala Asn Thr Ser Ala Leu Ala Val Pro Ser Pro Val Ser Asn
1345 1350 1355 1360
Ser Ala Ser Ala Arg His Arg Thr Glu Ala Leu Met Asp Ala Gln Lys
1365 1370 1375
Glu Asp Phe Asn Ser Lys His Met Ala Asn Gln Arg Ala Leu Gly Lys
1380 1385 1390
Leu Ser Ala His Thr His Thr Leu Ser Leu Thr Asp Ile Asn Glu Leu
1395 1400 1405
Val Cys Gly Ala Pro Gly Asp Ala Pro Cys Ala Thr Ser Pro Cys Gly
1410 1415 1420
Gly Ala Gly Cys Arg Asp Glu Asp Gly Gln Pro Arg Cys Gly Gly Leu
1425 1430 1435 1440
Ser Cys Asn Gly Ala Ala Ala Thr Ala Asp Leu Ala Leu Gly Arg Ala
1445 1450 1455
Arg His Thr Gln Ala Glu Leu Gln Arg Ala Leu Ala Glu Gly Gly Ser
1460 1465 1470
Ile Leu Ser Arg Val Ala Glu Thr Arg Arg Gln Ala Ser Glu Ala Gln
1475 1480 1485
Gln Arg Ala Gln Ala Ala Leu Asp Lys Ala Asn Ala Ser Arg Gly Gln
1490 1495 1500
Val Glu Gln Ala Asn Gln Glu Leu Gln Glu Leu Ile Gln Ser Val Lys
1505 1510 1515 1520
Asp Phe Leu Asn Gln Glu Gly Ala Asp Pro Asp Ser Ile Glu Met Val
1525 1530 1535
Ala Thr Arg Val Leu Glu Leu Ser Ile Pro Ala Ser Ala Glu Gln Ile
1540 1545 1550
Gln His Leu Ala Gly Ala Ile Ala Glu Arg Val Arg Ser Leu Ala Asp
1555 1560 1565
Val Asp Ala Ile Leu Ala Arg Thr Val Gly Asp Val Arg Arg Ala Glu
1570 1575 1580
Gln Leu Leu Gln Asp Ala Arg Arg Ala Arg Ser Trp Ala Glu Asp Glu
1585 1590 1595 1600
Lys Gln Lys Ala Glu Thr Val Gln Ala Ala Leu Glu Glu Ala Gln Arg
1605 1610 1615
Ala Gln Gly Ile Ala Gln Gly Ala Ile Arg Gly Ala Val Ala Asp Thr
1620 1625 1630
Arg Asp Thr Glu Gln Thr Leu Tyr Gln Val Gln Glu Arg Met Ala Gly
1635 1640 1645
Ala Glu Arg Ala Leu Ser Ser Ala Gly Glu Arg Ala Arg Gln Leu Asp
1650 1655 1660
Ala Leu Leu Glu Ala Leu Lys Leu Lys Arg Ala Gly Asn Ser Leu Ala

1665	1670	1675	1680
Ala Ser Thr Ala Glu Glu Thr Ala Gly Ser Ala Gln Gly Arg Ala Gln			
1685		1690	1695
Glu Ala Glu Gln Leu Leu Arg Gly Pro Leu Gly Asp Gln Tyr Gln Thr			
1700	1705	1710	
Val Lys Ala Leu Ala Glu Arg Lys Ala Gln Gly Val Leu Ala Ala Gln			
1715	1720	1725	
Ala Arg Ala Glu Gln Leu Arg Asp Glu Ala Arg Asp Leu Leu Gln Ala			
1730	1735	1740	
Ala Gln Asp Lys Leu Gln Arg Leu Gln Glu Leu Glu Gly Thr Tyr Glu			
1745	1750	1755	1760
Glu Asn Glu Arg Ala Leu Glu Ser Lys Ala Ala Gln Leu Asp Gly Leu			
1765	1770	1775	
Glu Ala Arg Met Arg Ser Val Leu Gln Ala Ile Asn Leu Gln Val Gln			
1780	1785	1790	
Ile Tyr Asn Thr Cys Gln			
1795			

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 <212> PRT
 <213> Mus Musculus

<300>
 <308> Swissprot P02468
 <309> 1989-07-01

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Leu Trp Pro Leu Leu Ala Val Leu Ala Ala Val Ala Gly Cys Val Arg			
20	25	30	
Ala Ala Met Asp Glu Cys Ala Asp Glu Gly Gly Arg Pro Gln Arg Cys			
35	40	45	
Met Pro Glu Phe Val Asn Ala Ala Phe Asn Val Thr Val Val Ala Thr			
50	55	60	
Asn Thr Cys Gly Thr Pro Pro Glu Glu Tyr Cys Val Gln Thr Gly Val			
65	70	75	80
Thr Gly Val Thr Lys Ser Cys His Leu Cys Asp Ala Gly Gln Gln His			
85	90	95	
Leu Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn Gln Ala Asp			
100	105	110	
Thr Thr Trp Trp Gln Ser Gln Thr Met Leu Ala Gly Val Gln Tyr Pro			
115	120	125	
Asn Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe Asp Ile Thr			
130	135	140	
Tyr Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser Phe Ala Ile			
145	150	155	160
Tyr Lys Arg Thr Arg Glu Asp Gly Pro Trp Ile Pro Tyr Gln Tyr Tyr			
165	170	175	
Ser Gly Ser Cys Glu Asn Thr Tyr Ser Lys Ala Asn Arg Gly Phe Ile			
180	185	190	
Arg Thr Gly Gly Asp Glu Gln Gln Ala Leu Cys Thr Asp Glu Phe Ser			
195	200	205	
Asp Ile Ser Pro Leu Thr Gly Gly Asn Val Ala Phe Ser Thr Leu Glu			
210	215	220	
Gly Arg Pro Ser Ala Tyr Asn Phe Asp Asn Ser Pro Val Leu Gln Glu			
225	230	235	240
Trp Val Thr Ala Thr Asp Ile Arg Val Thr Leu Asn Arg Leu Asn Thr			
245	250	255	

Phe Gly Asp Glu Val Phe Asn Glu Pro Lys Val Leu Lys Ser Tyr Tyr
260 265 270
Tyr Ala Ile Ser Asp Phe Ala Val Gly Gly Arg Cys Lys Cys Asn Gly
275 280 285
His Ala Ser Glu Cys Val Lys Asn Glu Phe Asp Lys Leu Met Cys Asn
290 295 300
Cys Lys His Asn Thr Tyr Gly Val Asp Cys Glu Lys Cys Leu Pro Phe
305 310 315 320
Phe Asn Asp Arg Pro Trp Arg Arg Ala Thr Ala Glu Ser Ala Ser Glu
325 330 335
Ser Leu Pro Cys Asp Cys Asn Gly Arg Ser Gln Glu Cys Tyr Phe Asp
340 345 350
Pro Glu Leu Tyr Arg Ser Thr Gly His Gly Gly His Cys Thr Asn Cys
355 360 365
Arg Asp Asn Thr Asp Gly Ala Lys Cys Glu Arg Cys Arg Glu Asn Phe
370 375 380
Phe Arg Leu Gly Asn Thr Glu Ala Cys Ser Pro Cys His Cys Ser Pro
385 390 395 400
Val Gly Ser Leu Ser Thr Gln Cys Asp Ser Tyr Gly Arg Cys Ser Cys
405 410 415
Lys Pro Gly Val Met Gly Asp Lys Cys Asp Arg Cys Gln Pro Gly Phe
420 425 430
His Ser Leu Thr Glu Ala Gly Cys Arg Pro Cys Ser Cys Asp Leu Arg
435 440 445
Gly Ser Thr Asp Glu Cys Asn Val Glu Thr Gly Arg Cys Val Cys Lys
450 455 460
Asp Asn Val Glu Gly Phe Asn Cys Glu Arg Cys Lys Pro Gly Phe Phe
465 470 475 480
Asn Leu Glu Ser Ser Asn Pro Lys Gly Cys Thr Pro Cys Phe Cys Phe
485 490 495
Gly His Ser Ser Val Cys Thr Asn Ala Val Gly Tyr Ser Val Tyr Asp
500 505 510
Ile Ser Ser Thr Phe Gln Ile Asp Glu Asp Gly Trp Arg Val Glu Gln
515 520 525
Arg Asp Gly Ser Glu Ala Ser Leu Glu Trp Ser Ser Asp Arg Gln Asp
530 535 540
Ile Ala Val Ile Ser Asp Ser Tyr Phe Pro Arg Tyr Phe Ile Ala Pro
545 550 555 560
Val Lys Phe Leu Gly Asn Gln Val Leu Ser Tyr Gly Gln Asn Leu Ser
565 570 575
Phe Ser Phe Arg Val Asp Arg Arg Asp Thr Arg Leu Ser Ala Glu Asp
580 585 590
Leu Val Leu Glu Gly Ala Gly Leu Arg Val Ser Val Pro Leu Ile Ala
595 600 605
Gln Gly Asn Ser Tyr Pro Ser Glu Thr Thr Val Lys Tyr Ile Phe Arg
610 615 620
Leu His Glu Ala Thr Asp Tyr Pro Trp Arg Pro Ala Leu Ser Pro Phe
625 630 635 640
Glu Phe Gln Lys Leu Leu Asn Asn Leu Thr Ser Ile Lys Ile Arg Gly
645 650 655
Thr Tyr Ser Glu Arg Thr Ala Gly Tyr Leu Asp Asp Val Thr Leu Gln
660 665 670
Ser Ala Arg Pro Gly Pro Gly Val Pro Ala Thr Trp Val Glu Ser Cys
675 680 685
Thr Cys Pro Val Gly Tyr Gly Gln Phe Cys Glu Thr Cys Leu Pro
690 695 700
Gly Tyr Arg Arg Glu Thr Pro Ser Leu Gly Pro Tyr Ser Pro Cys Val
705 710 715 720
Leu Cys Thr Cys Asn Gly His Ser Glu Thr Cys Asp Pro Glu Thr Gly
725 730 735
Val Cys Asp Cys Arg Asp Asn Thr Ala Gly Pro His Cys Glu Lys Cys

740	745	750	
Ser Asp Gly Tyr Tyr Gly Asp Ser	Thr Leu Gly Thr Ser	Ser Asp Cys	
755	760	765	
Gln Pro Cys Pro Cys Pro Gly	Gly Ser Ser Cys Ala	Ile Val Pro Lys	
770	775	780	
Thr Lys Glu Val Val Cys	Thr His Cys Pro Thr	Gly Thr Ala Gly Lys	
785	790	795	800
Arg Cys Glu Leu Cys Asp Asp	Gly Tyr Phe Gly Asp	Pro Leu Gly Ser	
805	810	815	
Asn Gly Pro Val Arg Leu Cys	Arg Pro Cys Gln Cys	Asn Asp Asn Ile	
820	825	830	
Asp Pro Asn Ala Val Gly	Asn Cys Asn Arg Leu	Thr Gly Glu Cys Leu	
835	840	845	
Lys Cys Ile Tyr Asn Thr Ala	Gly Phe Tyr Cys Asp	Arg Cys Lys Glu	
850	855	860	
Gly Phe Phe Gly Asn Pro	Leu Ala Pro Asn Pro	Ala Asp Lys Cys Lys	
865	870	875	880
Ala Cys Ala Cys Asn Pro	Tyr Gly Thr Val Gln	Gln Ser Ser Cys	
885	890	895	
Asn Pro Val Thr Gly Gln	Cys Gln Cys Leu Pro	His Val Ser Gly Arg	
900	905	910	
Asp Cys Gly Thr Cys Asp	Pro Gly Tyr Tyr Asn	Leu Gln Ser Gly Gln	
915	920	925	
Gly Cys Glu Arg Cys Asp	Cys His Ala Leu Gly	Ser Thr Asn Gly Gln	
930	935	940	
Cys Asp Ile Arg Thr Gly	Gln Cys Glu Cys Gln	Pro Gly Ile Thr Gly	
945	950	955	960
Gln His Cys Glu Arg Cys	Glu Thr Asn His Phe	Gly Phe Gly Pro Glu	
965	970	975	
Gly Cys Lys Pro Cys Asp	Cys His His Glu Gly	Ser Leu Ser Leu Gln	
980	985	990	
Cys Lys Asp Asp Gly Arg	Cys Glu Cys Arg Glu	Gly Phe Val Gly Asn	
995	1000	1005	
Arg Cys Asp Gln Cys Glu	Glu Asn Tyr Phe Tyr	Asn Arg Ser Trp Pro	
1010	1015	1020	
Gly Cys Gln Glu Cys Pro	Ala Cys Tyr Arg Leu	Val Lys Asp Lys Ala	
1025	1030	1035	1040
Ala Glu His Arg Val Lys	Leu Gln Glu Leu Glu	Ser Leu Ile Ala Asn	
1045	1050	1055	
Leu Gly Thr Gly Asp Asp	Met Val Thr Asp Gln	Ala Phe Glu Asp Arg	
1060	1065	1070	
Leu Lys Glu Ala Glu Arg	Glu Val Thr Asp Leu	Leu Arg Glu Ala Gln	
1075	1080	1085	
Glu Val Lys Asp Val Asp	Gln Asn Leu Met Asp	Arg Leu Gln Arg Val	
1090	1095	1100	
Asn Ser Ser Leu His Ser	Gln Ile Ser Arg Leu	Gln Asn Ile Arg Asn	
1105	1110	1115	1120
Thr Ile Glu Glu Thr Gly	Ile Leu Ala Glu Arg	Ala Arg Ser Arg Val	
1125	1130	1135	
Glu Ser Thr Glu Gln Leu	Ile Glu Ile Ala Ser	Arg Glu Leu Glu Lys	
1140	1145	1150	
Ala Lys Met Ala Ala Ala	Asn Val Ser Ile Thr	Gln Pro Glu Ser Thr	
1155	1160	1165	
Gly Glu Pro Asn Asn Met	Thr Leu Leu Ala Glu	Glu Ala Arg Arg Leu	
1170	1175	1180	
Ala Glu Arg His Lys Gln	Glu Ala Asp Asp Ile	Val Arg Val Ala Lys	
1185	1190	1195	1200
Thr Ala Asn Glu Thr Ser	Ala Glu Ala Tyr Asn	Leu Leu Leu Arg Thr	
1205	1210	1215	
Leu Ala Gly Glu Asn Gln	Thr Ala Leu Glu Ile	Glu Leu Asn Arg	
1220	1225	1230	

Lys Tyr Glu Gln Ala Lys Asn Ile Ser Gln Asp Leu Glu Lys Gln Ala
 1235 1240 1245
 Ala Arg Val His Glu Glu Ala Lys Arg Ala Gly Asp Lys Ala Val Glu
 1250 1255 1260
 Ile Tyr Ala Ser Val Ala Gln Leu Thr Pro Val Asp Ser Glu Ala Leu
 1265 1270 1275 1280
 Glu Asn Glu Ala Asn Lys Ile Lys Lys Glu Ala Ala Asp Leu Asp Arg
 1285 1290 1295
 Leu Ile Asp Gln Lys Leu Lys Asp Tyr Glu Asp Leu Arg Glu Asp Met
 1300 1305 1310
 Arg Gly Lys Glu His Glu Val Lys Asn Leu Leu Glu Lys Gly Lys Ala
 1315 1320 1325
 Glu Gln Gln Thr Ala Asp Gln Leu Leu Ala Arg Ala Asp Ala Ala Lys
 1330 1335 1340
 Ala Leu Ala Glu Glu Ala Ala Lys Lys Gly Arg Ser Thr Leu Gln Glu
 1345 1350 1355 1360
 Ala Asn Asp Ile Leu Asn Asn Leu Lys Asp Phe Asp Arg Arg Val Asn
 1365 1370 1375
 Asp Asn Lys Thr Ala Ala Glu Glu Ala Leu Arg Arg Ile Pro Ala Ile
 1380 1385 1390
 Asn Arg Thr Ile Ala Glu Ala Asn Glu Lys Thr Arg Glu Ala Gln Leu
 1395 1400 1405
 Ala Leu Gly Asn Ala Ala Ala Asp Ala Thr Glu Ala Lys Asn Lys Ala
 1410 1415 1420
 His Glu Ala Glu Arg Ile Ala Ser Ala Val Gln Lys Asn Ala Thr Ser
 1425 1430 1435 1440
 Thr Lys Ala Asp Ala Glu Arg Thr Phe Gly Glu Val Thr Asp Leu Asp
 1445 1450 1455
 Asn Glu Val Asn Gly Met Leu Arg Gln Leu Glu Glu Ala Glu Asn Glu
 1460 1465 1470
 Leu Lys Arg Lys Gln Asp Asp Ala Asp Gln Asp Met Met Met Ala Gly
 1475 1480 1485
 Met Ala Ser Gln Ala Ala Gln Glu Ala Glu Leu Asn Ala Arg Lys Ala
 1490 1495 1500
 Lys Asn Ser Val Ser Ser Leu Leu Ser Gln Leu Asn Asn Leu Leu Asp
 1505 1510 1515 1520
 Gln Leu Gly Gln Leu Asp Thr Val Asp Leu Asn Lys Leu Asn Glu Ile
 1525 1530 1535
 Glu Gly Ser Leu Asn Lys Ala Lys Asp Glu Met Lys Ala Ser Asp Leu
 1540 1545 1550
 Asp Arg Lys Val Ser Asp Leu Glu Ser Glu Ala Arg Lys Gln Glu Ala
 1555 1560 1565
 Ala Ile Met Asp Tyr Asn Arg Asp Ile Ala Glu Ile Ile Lys Asp Ile
 1570 1575 1580
 His Asn Leu Glu Asp Ile Lys Lys Thr Leu Pro Thr Gly Cys Phe Asn
 1585 1590 1595 1600
 Thr Pro Ser Ile Glu Lys Pro
 1605

<210> 11
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 <212> PRT
 <213> Homo Sapiens

<300>
 <308> Swissprot P11047
 <309> 1991-11-01

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20	25	30	
Ala Gln Ala Ala Met Asp Glu Cys Thr Asp Glu Gly Gly Arg Pro Gln			
35	40	45	
Arg Cys Met Pro Glu Phe Val Asn Ala Ala Phe Asn Val Thr Val Val			
50	55	60	
Ala Thr Asn Thr Cys Gly Thr Pro Pro Glu Glu Tyr Cys Val Gln Thr			
65	70	75	80
Gly Val Thr Gly Val Thr Lys Ser Cys His Leu Cys Asp Ala Gly Gln			
85	90	95	
Pro His Leu Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn Gln			
100	105	110	
Ala Asp Thr Thr Trp Trp Gln Ser Gln Thr Met Leu Ala Gly Val Gln			
115	120	125	
Tyr Pro Ser Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe Asp			
130	135	140	
Ile Thr Tyr Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser Phe			
145	150	155	160
Ala Ile Tyr Lys Arg Thr Arg Glu Asp Gly Pro Trp Ile Pro Tyr Gln			
165	170	175	
Tyr Tyr Ser Gly Ser Cys Glu Asn Thr Tyr Ser Lys Ala Asn Arg Gly			
180	185	190	
Phe Ile Arg Thr Gly Gly Asp Glu Gln Gln Ala Leu Cys Thr Asp Glu			
195	200	205	
Phe Ser Asp Phe Ser Pro Leu Thr Gly Gly Asn Val Ala Phe Ser Thr			
210	215	220	
Leu Glu Gly Arg Pro Ser Ala Tyr Asn Phe Asp Asn Ser Pro Val Leu			
225	230	235	240
Gln Glu Trp Val Thr Ala Thr Asp Ile Arg Val Thr Leu Asn Arg Leu			
245	250	255	
Asn Thr Phe Gly Asp Glu Val Phe Asn Asp Pro Lys Val Leu Lys Ser			
260	265	270	
Tyr Tyr Tyr Ala Ile Ser Asp Phe Ala Val Gly Gly Arg Cys Lys Cys			
275	280	285	
Asn Gly His Ala Ser Glu Cys Met Lys Asn Glu Phe Asp Lys Leu Val			
290	295	300	
Cys Asn Cys Lys His Asn Thr Tyr Gly Val Asp Cys Glu Lys Cys Leu			
305	310	315	320
Pro Phe Phe Asn Asp Arg Pro Trp Arg Arg Ala Thr Ala Glu Ser Ala			
325	330	335	
Ser Glu Cys Leu Pro Cys Asp Cys Asn Gly Arg Ser Gln Glu Cys Tyr			
340	345	350	
Phe Asp Pro Glu Leu Tyr Arg Ser Thr Gly His Gly Gly His Cys Thr			
355	360	365	
Asn Cys Gln Asp Asn Thr Asp Gly Ala His Cys Glu Arg Cys Arg Glu			
370	375	380	
Asn Phe Phe Arg Leu Gly Asn Asn Glu Ala Cys Ser Ser Cys His Cys			
385	390	395	400
Ser Pro Val Gly Ser Leu Ser Thr Gln Cys Asp Ser Tyr Gly Arg Cys			
405	410	415	
Ser Cys Lys Pro Gly Val Met Gly Asp Lys Cys Asp Arg Cys Gln Pro			
420	425	430	
Gly Phe His Ser Leu Thr Glu Ala Gly Cys Arg Pro Cys Ser Cys Asp			
435	440	445	
Pro Ser Gly Ser Ile Asp Glu Cys Asn Val Glu Thr Gly Arg Cys Val			
450	455	460	
Cys Lys Asp Asn Val Glu Gly Phe Asn Cys Glu Arg Cys Lys Pro Gly			
465	470	475	480
Phe Phe Asn Leu Glu Ser Ser Asn Pro Arg Gly Cys Thr Pro Cys Phe			
485	490	495	

Cys Phe Gly His Ser Ser Val Cys Thr Asn Ala Val Gly Tyr Ser Val
500 505 510
Tyr Ser Ile Ser Ser Thr Phe Gln Ile Asp Glu Asp Gly Trp Arg Ala
515 520 525
Glu Gln Arg Asp Gly Ser Glu Ala Ser Leu Glu Trp Ser Ser Glu Arg
530 535 540
Gln Asp Ile Ala Val Ile Ser Asp Ser Tyr Phe Pro Arg Tyr Phe Ile
545 550 555 560
Ala Pro Ala Lys Phe Leu Gly Lys Gln Val Leu Ser Tyr Gly Gln Asn
565 570 575
Leu Ser Phe Ser Phe Arg Val Asp Arg Arg Asp Thr Arg Leu Ser Ala
580 585 590
Glu Asp Leu Val Leu Glu Gly Ala Gly Leu Arg Val Ser Val Pro Leu
595 600 605
Ile Ala Gln Gly Asn Ser Tyr Pro Ser Glu Thr Thr Val Lys Tyr Val
610 615 620
Phe Arg Leu His Glu Ala Thr Asp Tyr Pro Trp Arg Pro Ala Leu Thr
625 630 635 640
Pro Phe Glu Phe Gln Lys Leu Leu Asn Asn Leu Thr Ser Ile Lys Ile
645 650 655
Arg Gly Thr Tyr Ser Glu Arg Ser Ala Gly Tyr Leu Asp Asp Val Thr
660 665 670
Leu Ala Ser Ala Arg Pro Gly Pro Gly Val Pro Ala Thr Trp Val Glu
675 680 685
Ser Cys Thr Cys Pro Val Gly Tyr Gly Gly Gln Phe Cys Glu Met Cys
690 695 700
Leu Ser Gly Tyr Arg Arg Glu Thr Pro Asn Leu Gly Pro Tyr Ser Pro
705 710 715 720
Cys Val Leu Cys Ala Cys Asn Gly His Ser Glu Thr Cys Asp Pro Glu
725 730 735
Thr Gly Val Cys Asn Cys Arg Asp Asn Thr Ala Gly Pro His Cys Glu
740 745 750
Lys Cys Ser Asp Gly Tyr Tyr Gly Asp Ser Thr Ala Gly Thr Ser Ser
755 760 765
Asp Cys Gln Pro Cys Pro Cys Pro Gly Gly Ser Ser Cys Ala Val Val
770 775 780
Pro Lys Thr Lys Glu Val Val Cys Thr Asn Cys Pro Thr Gly Thr Thr
785 790 795 800
Gly Lys Arg Cys Glu Leu Cys Asp Asp Gly Tyr Phe Gly Asp Pro Leu
805 810 815
Gly Arg Asn Gly Pro Val Arg Leu Cys Arg Leu Cys Gln Cys Ser Asp
820 825 830
Asn Ile Asp Pro Asn Ala Val Gly Asn Cys Asn Arg Leu Thr Gly Glu
835 840 845
Cys Leu Lys Cys Ile Tyr Asn Thr Ala Gly Phe Tyr Cys Asp Arg Cys
850 855 860
Lys Asp Gly Phe Phe Gly Asn Pro Leu Ala Pro Asn Pro Ala Asp Lys
865 870 875 880
Cys Lys Ala Cys Asn Cys Asn Pro Tyr Gly Thr Met Lys Gln Gln Ser
885 890 895
Ser Cys Asn Pro Val Thr Gly Gln Cys Glu Cys Leu Pro His Val Thr
900 905 910
Gly Gln Asp Cys Gly Ala Cys Asp Pro Gly Phe Tyr Asn Leu Gln Ser
915 920 925
Gly Gln Gly Cys Glu Arg Cys Asp Cys His Ala Leu Gly Ser Thr Asn
930 935 940
Gly Gln Cys Asp Ile Arg Thr Gly Gln Cys Glu Cys Gln Pro Gly Ile
945 950 955 960
Thr Gly Gln His Cys Glu Arg Cys Glu Val Asn His Phe Gly Phe Gly
965 970 975
Pro Glu Gly Cys Lys Pro Cys Asp Cys His Pro Glu Gly Ser Leu Ser

980	985	990
Leu Gln Cys Lys Asp Asp Gly Arg Cys Glu Cys Arg Glu Gly Phe Val		
995	1000	1005
Gly Asn Arg Cys Asp Gln Cys Glu Glu Asn Tyr Phe Tyr Asn Arg Ser		
1010	1015	1020
Trp Pro Gly Cys Gln Glu Cys Pro Ala Cys Tyr Arg Leu Val Lys Asp		
1025	1030	1035
Lys Val Ala Asp His Arg Val Lys Leu Gln Glu Leu Glu Ser Leu Ile		
1045	1050	1055
Ala Asn Leu Gly Thr Gly Asp Glu Met Val Thr Asp Gln Ala Phe Glu		
1060	1065	1070
Asp Arg Leu Lys Glu Ala Glu Arg Glu Val Met Asp Leu Leu Arg Glu		
1075	1080	1085
Ala Gln Asp Val Lys Asp Val Asp Gln Asn Leu Met Asp Arg Leu Gln		
1090	1095	1100
Arg Val Asn Asn Thr Leu Ser Ser Gln Ile Ser Arg Leu Gln Asn Ile		
1105	1110	1115
Arg Asn Thr Ile Glu Glu Thr Gly Asn Leu Ala Glu Gln Ala Arg Ala		
1125	1130	1135
His Val Glu Asn Thr Glu Arg Leu Ile Glu Ile Ala Ser Arg Glu Leu		
1140	1145	1150
Glu Lys Ala Lys Val Ala Ala Asn Val Ser Val Thr Gln Pro Glu		
1155	1160	1165
Ser Thr Gly Asp Pro Asn Asn Met Thr Leu Leu Ala Glu Glu Ala Arg		
1170	1175	1180
Lys Leu Ala Glu Arg His Lys Gln Glu Ala Asp Asp Ile Val Arg Val		
1185	1190	1195
Ala Lys Thr Ala Asn Asp Thr Ser Thr Glu Ala Tyr Asn Leu Leu		
1205	1210	1215
Arg Thr Leu Ala Gly Glu Asn Gln Thr Ala Phe Glu Ile Glu Glu Leu		
1220	1225	1230
Asn Arg Lys Tyr Glu Gln Ala Lys Asn Ile Ser Gln Asp Leu Glu Lys		
1235	1240	1245
Gln Ala Ala Arg Val His Glu Glu Ala Lys Arg Ala Gly Asp Lys Ala		
1250	1255	1260
Val Glu Ile Tyr Ala Ser Val Ala Gln Leu Ser Pro Leu Asp Ser Glu		
1265	1270	1275
Thr Leu Glu Asn Glu Ala Asn Asn Ile Lys Met Glu Ala Glu Asn Leu		
1285	1290	1295
Glu Gln Leu Ile Asp Gln Lys Leu Lys Asp Tyr Glu Asp Leu Arg Glu		
1300	1305	1310
Asp Met Arg Gly Lys Glu Leu Glu Val Lys Asn Leu Leu Glu Lys Gly		
1315	1320	1325
Lys Thr Glu Gln Gln Thr Ala Asp Gln Leu Leu Ala Arg Ala Asp Ala		
1330	1335	1340
Ala Lys Ala Leu Ala Glu Glu Ala Ala Lys Lys Gly Arg Asp Thr Leu		
1345	1350	1355
Gln Glu Ala Asn Asp Ile Leu Asn Asn Leu Lys Asp Phe Asp Arg Arg		
1365	1370	1375
Val Asn Asp Asn Lys Thr Ala Ala Glu Glu Ala Leu Arg Lys Ile Pro		
1380	1385	1390
Ala Ile Asn Gln Thr Ile Thr Glu Ala Asn Glu Lys Thr Arg Glu Ala		
1395	1400	1405
Gln Gln Ala Leu Gly Ser Ala Ala Ala Asp Ala Thr Glu Ala Lys Asn		
1410	1415	1420
Lys Ala His Glu Ala Glu Arg Ile Ala Ser Ala Val Gln Lys Asn Ala		
1425	1430	1435
Thr Ser Thr Lys Ala Glu Ala Glu Arg Thr Phe Ala Glu Val Thr Asp		
1445	1450	1455
Leu Asp Asn Glu Val Asn Asn Met Leu Lys Gln Leu Gln Glu Ala Glu		
1460	1465	1470

Lys Glu Leu Lys Arg Lys Gln Asp Asp Ala Asp Gln Asp Met Met Met
1475 1480 1485
Ala Gly Met Ala Ser Gln Ala Ala Gln Glu Ala Glu Ile Asn Ala Arg
1490 1495 1500
Lys Ala Lys Asn Ser Val Thr Ser Leu Leu Ser Ile Ile Asn Asp Leu
1505 1510 1515 1520
Leu Glu Gln Leu Gly Gln Leu Asp Thr Val Asp Leu Asn Lys Leu Asn
1525 1530 1535
Glu Ile Glu Gly Thr Leu Asn Lys Ala Lys Asp Glu Met Lys Val Ser
1540 1545 1550
Asp Leu Asp Arg Lys Val Ser Asp Leu Glu Asn Glu Ala Lys Lys Gln
1555 1560 1565
Glu Ala Ala Ile Met Asp Tyr Asn Arg Asp Ile Glu Glu Ile Met Lys
1570 1575 1580
Asp Ile Arg Asn Leu Glu Asp Ile Arg Lys Thr Leu Pro Ser Gly Cys
1585 1590 1595 1600
Phe Asn Thr Pro Ser Ile Glu Lys Pro
1605